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MODERNIZING COAST GUARD
REQUISITIONING BUSINESS PRACTICES

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CHAPTER 1

Overview

INTRODUCTION

The U.S. Coast Guard (USCG) is developing modern automated information management systems to further integrate its supply, maintenance, financial, and configuration management functions as part of its Systems to Automate and Integrate Logistics (SAIL) project. The Fleet Logistics System (FLS), a key component of SAIL, has been initiated to "develop an integrated system to support fleet logistics."[1] The Coast Guard Logistics Management Division (G-ELM), Office of Engineering, Logistics and Development, has designated the Materiel Management System (MMS) as the future unit-level Coast Guard requisitioning system, replacing the Automated Requisition Management System (ARMS). The FLS conceptual architecture report defines MMS as a system that

> ... supports the generation of MILSTRIP transactions by USCG, forwards them to DAAS, and keeps records of these transactions and those sent from DAAS to USCG. It tracks parts starting from MILSTRIP shipment transactions through delivery. It will also support the staging of materiels for scheduled intermediate and depot level maintenance periods. In addition this application captures information on commercial purchases. This information capture provides the critical data needed by the USCG to evaluate commercial supply and federal supply system performance.[2][3]

From that definition, we envisage MMS as the unit-level means for creating requisitions from requirements submitted by other unit-level applications; transmitting requisitions to the source of supply and the financial system; and transferring information on requisition and commercial procurement to the data collection system. It will receive supply status transactions from the source of supply and distribute them to the unit, financial system, and data collection system.

PREVIOUS MATERIEL MANAGEMENT SYSTEM STUDIES

In June 1991, the Coast Guard Electronics Engineering Center completed the business area analysis (BAA) defining the functional requirements for MMS. In that analysis, it proposed that an "MMS Central" be developed as an inter-

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[1] *Fleet Logistics System (FLS) Conceptual Architecture Report (CAR)* (draft) Volpe National Transportation Systems Center, 4 December 1992.

[2] Ibid., Appendix A, p. 22.

[3] MILSTRIP = Military Standard Requisitioning and Issue Procedures; DAAS = Defense Automatic Addressing System.

mediate stop between the unit and DAAS.[4] All requisitions from, and status to, the units would pass through MMS Central. The MMS Central computer would take on the additional task of collecting requisition-related information for management retrieval.

Unlike ARMS, the current requisitioning system, the proposed MMS Central computer will not validate the requisition's financial information or transmit obligation accounting data to the Department of Transportation (DOT) finance center in the Departmental Accounting and Financial Information System (DAFIS) format. The BAA proposes that each requisition have a "CG" fund code to identify that the bills should be sent to the Coast Guard Finance Center (FINCEN). Financial obligation data will be transmitted to the FINCEN by the unit through the Large Unit Financial System (LUFS).

Review of the BAA proposal raised the following issues:

◆ The BAA proposal for transmitting financial information was incomplete. It made no accommodation for units without LUFS to send requisition financial obligation information to the FINCEN. It did not address how the obligation would be input to DAFIS or how the FINCEN would identify the proper line of accounting to charge when it receives a bill for the requisitioned item.

◆ The BAA assumed that the Coast Guard would implement Defense Logistics Management Systems (DLMS) Version 1.1 transaction formats. Subsequently, the Coast Guard decided to implement an improved version, DLMS Version 2.0, currently being developed.

◆ The BAA does not address the transmission and collection of commercial purchasing information.

In its efforts to support SAIL, the Volpe National Transportation System Center (VNTSC) tasked the Logistics Management Institute (LMI) to study and redefine the functional business practices for the Coast Guard's unit-level requisitioning process.

AREA OF ANALYSIS

This study examines the unit-level materiel procurement processes for requisitioning an item from the Federal Supply System and purchasing an item from a commercial vendor. Our analysis includes the process involved in creating and transmitting unit-level materiel procurement transactions and requisition-related information and the data requirements of various entities affected by the requisitioning process. Those include DAFIS, the FINCEN, and supply activities.

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[4] MMS Central describes a central processing point to which all transactions are sent to be validated and stored before they are forwarded to the source of supply.

Major Issues

In our analysis of the requirements for the MMS, we focused on the following four major issues:

◆ The method of transmitting and validating requisition-related financial information

◆ The process for collecting and providing access to requisition and commercial purchasing data

◆ The communications methods used to transmit requisitions from all Coast Guard units

◆ The effect of DLMS Version 2.0 on the implementation of MMS.

Insofar as the first issue is concerned, key questions may be divided into two general categories — financial data-editing check and financial data transmission in DAFIS format. The first set of questions relates to the nature of the financial data-editing check and its location in the process. Should the editing check be done at the unit level or at a central location? If it is done at the unit level, how should it be performed? The second set of key questions entails deciding the point in the process at which the DAFIS transaction should be created. Should, for example, the entity creating the transaction submit a DAFIS-formatted transaction? Or should MMS provide a translator on the front end of DAFIS to convert standard transactions into DAFIS format?

The key question for the second issue is whether the Coast Guard should create a customized data-collection system or use an existing DoD-sponsored data base (such as, perhaps, the Logistics Information Processing System).

The third issue deals with the system that transmits MMS transactions among the unit, supply activities, and financial system. The issue entails the need to create a transaction transmission system with a communications gateway flexible enough to accommodate all MMS users. The key questions are: What type of facilities are necessary to allow both shore and afloat units to have access to MMS? Can the operating instructions to DAAS be changed to allow the current communication methods (telephone and messages) to be used? Does a system such as SALTS[5] need to be created or can SALTS satisfy Coast Guard requirements?

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[5]Streamlined Automated Logistics Transmission System (SALTS) is a communications network established by the Navy to permit afloat and shore units to pass logistics information quickly and easily via satellite, telephone landline, cellular telephone systems, and portable field units. SALTS Central is located at the Aviation Supply Office, Philadelphia, Pa.

The last issue relates to the implementation of DLMS Version 2.0 conventions. The key questions are when will those conventions be available, what are the risks of converting to DLMS Version 2.0, and how can the risks be mitigated?

Study Objectives

Our primary objective is to recommend a redesign of the business practices associated with establishing a unit-level requisition submission system and the data-collection and -tracking system for requisitioning and commercial purchasing information. In this study, we determine the business practices for a requisitioning system on the basis of the current functionality of ARMS and the FLS conceptual architecture report definition of MMS.

We also address the impact of implementing DLMS Version 2.0 on MMS, and we outline the increased capabilities provided by DLMS Version 2.0 transaction formats. We also assess the risks and remedies available to the Coast Guard in converting to DLMS Version 2.0 format.

SUMMARY OF RECOMMENDATIONS

From our analysis of the issues and requirements of MMS, we recommend that the Coast Guard take the following actions:[6]

- ◆ Perform requisition-related financial data edit checking at the unit level

- ◆ Eliminate the operating facility (OPFAC)/fund code table and replace it with the standardized fund code we propose

- ◆ Develop and maintain a translator to convert Defense Logistics Standard System (DLSS) transactions into DAFIS-formatted transactions

- ◆ Locate the financial translator at the FINCEN

- ◆ Establish a Coast Guard logistics intelligence file (CGLIF) to capture all requisition and commercial purchase information

- ◆ Design the CGLIF to recognize the data requirements of the parts tracking system

- ◆ Monitor the development of both MMS and the parts-tracking system to ensure functional consistency and prevent duplication of process

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[6]We do not recommend the establishment of an MMS Central. While our proposed organization includes organizational entities that perform each of the functions of an MMS Central, we do not believe that all of those functions have to be performed at a central site.

◆ Establish a communications gateway that can accommodate both requisition and commercial purchase transactions

◆ Instruct DAAS to route a copy of all Coast Guard message and Defense Automated Message Exchange System (DAMES) requisitions through ARMS until a communications gateway is established

◆ Provide the capability for MMS to automatically select either DLSS or DLMS formats

◆ Review DLMS enhancements and determine what enhanced data capabilities apply to Coast Guard logistics transactions.

REPORT ORGANIZATION

In the next three chapters, we address the background and issues and answer the questions that we identify above. In Chapter 2, we outline the requisitioning systems that MMS will replace and we present general descriptive information on DLMS. In Chapter 3, we deal with the four major issues of the redesigned MMS business practices: financial requirements, data collection requirements, communications requirements, and implementing DLMS. We also discuss some interim process improvements in that chapter. In Chapter 4, we present the recommended MMS processes and organizational entities.

CHAPTER 2

Background

CURRENT REQUISITIONING SYSTEMS

To enter a requisition into the Federal Supply System, a Coast Guard unit can either use ARMS, or can send the requisition directly to the DAAS by using either DAMES or an Automated Digital Network (AUTODIN) message. ARMS, developed by the Coast Guard, requires the requisitioner to have access to a Coast Guard standard workstation, a modem, and a commercial telephone line. Both methods send requisitions in DLSS format.

Automated Requisition Management System Requisitions

The ARMS requisitioning system is made up of two systems, Interactive ARMS and Batch ARMS. Interactive ARMS was developed in 1979 as the primary means for sending DLSS requisitions from the Coast Guard standard workstations. Batch ARMS, which creates a batch of requisitions and sends them to the Transportation Computer Center (TCC) Amdahl computer[1] in one transmission, was developed and made available throughout the Coast Guard in 1988. In 1990, Batch ARMS was incorporated as a subsystem of the LUFS. This change allowed requisitioning units to update their financial ledgers automatically upon requisition transmission.

The use of ARMS is constrained by the availability of telephone lines or a Coast Guard Data Network connection. Afloat units at sea do not have access to it; when in port, those units often do not have enough commercial telephone landlines to devote one to sending ARMS requisitions.

Currently, ARMS sends DLSS requisitions to DAAS over the TCC Amdahl computer (Figure 2-1). The computer matches the requisition's fund code against a fund code table to verify that it is authorized. If the OPFAC[2]/fund code combination is invalid, the requisition is returned to the requisitioner for correction. Requisitions that pass this edit check are sent to DAAS, which then forwards the requisition to the source of supply. At the same time, the TCC Amdahl computer matches the OPFAC/fund code combination with DAFIS-formatted

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[1] That computer is located at DOT Headquarters. The Coast Guard leases space on that computer to run the ARMS application.

[2] The OPFAC is a five-digit identification number that has been assigned to each operating unit in the Coast Guard. This number is used for fiscal and accounting purposes to collect the cost of operating the unit.

(320 characters), full-line, accounting data. The accounting data are forwarded to the DAFIS computer center to create a financial obligation.
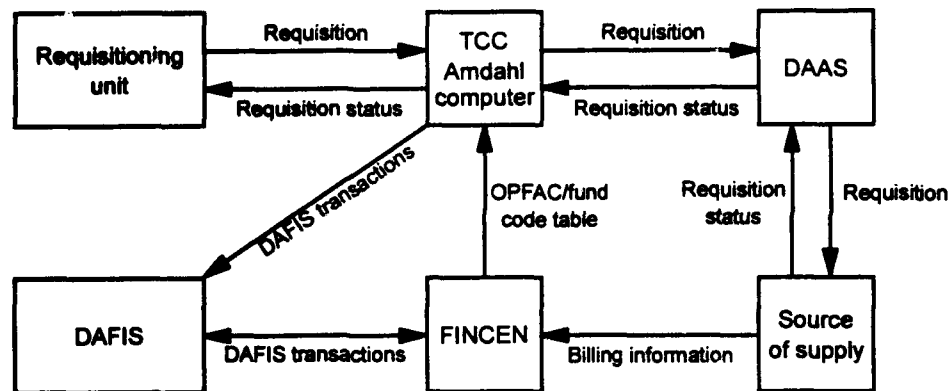
Figure 2-1.
ARMS Requisition Flow

Requisitioners using the Interactive ARMS method create requisitions interactively while logged on to the TCC Amdahl computer. The Interactive ARMS program performs all edit checks to ensure requisition data, including the fund code, are correct before the requisition is accepted. Only after a requisition is accepted, can the unit create another requisition. Although reliable, interactive ARMS can be time consuming because it creates requisitions one at a time. Units that send many requisitions using Interactive ARMS can tie up telephone lines for a long time and incur high long-distance telephone charges.

Batch ARMS creates a batch of requisitions on the Coast Guard workstation before logging on to the TCC Amdahl computer. The unit then sends the batch of requisitions through remote job entry (RJE) software. After the requisitions are received, ARMS validates the requisitions. The valid requisitions are accepted and forwarded to DAAS and the DAFIS computer center, while the invalid requisitions are returned to the unit for correction. Batch ARMS is faster and places less demand on telephone resources than Interactive ARMS. Despite its advantages, however, many potential users have found the RJE communication link with the TCC Amdahl computer difficult to establish. For that reason, many potential users do not use Batch ARMS. The FINCEN and G-ELM are currently testing an asynchronous file transfer process to improve the communication link for Batch ARMS.

The TCC Amdahl computer transmits requisition status and changes received from DAAS to the financial system and the requisitioner. In addition to forwarding status information to the requisitioning unit, the TCC Amdahl computer translates status transactions that have financial application — such as price changes, quantity changes, or cancellations — into DAFIS transactions and forwards them to the DAFIS computer center.

Additional Requisitioning Methods

Coast Guard units that choose not to use ARMS to send DLSS requisitions have two additional methods: message and DAMES. As Figure 2-2 shows, both methods bypass ARMS and send requisitions directly to DAAS.[3] Message requisitions are used mostly by afloat units, which do not have commercial telephone service. DAMES, which is used by a limited number of Coast Guard requisitioners, transmits requisitions to DAAS over commercial telephone lines. It is preferred to ARMS because its requisitions are received by the source of supply faster, and communication software presents fewer problems than the RJE software used by ARMS.
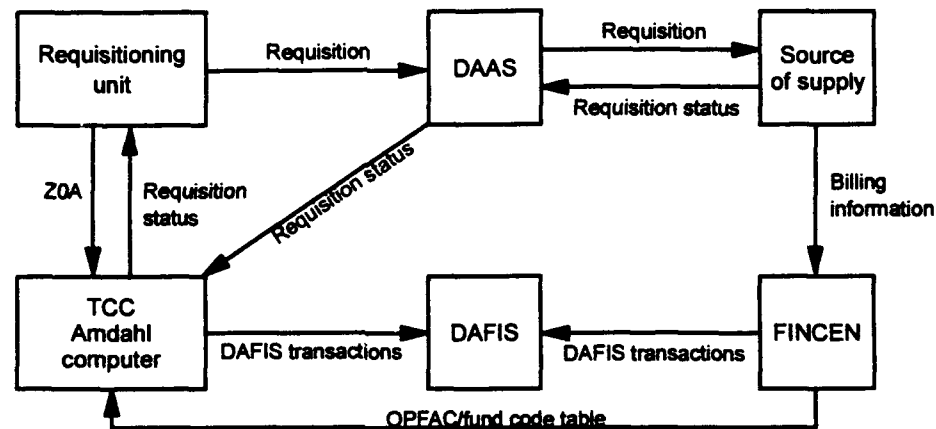
Figure 2-2.
Non-ARMS Requisition Flow

The processing of non-ARMS requisitions differs from that of ARMS requisitions in that both message and DAMES requisitioning processes bypass the TCC Amdahl computer and send requisitions directly to DAAS. Thus, non-ARMS requisitions are processed differently than ARMS requisitions. One functional difference is that DAFIS accounting data is not automatically sent to the DAFIS computer center to create an obligation. Another, is that fund codes on non-ARMS requisitions are not validated before the requisition is sent to the source of supply.

The requisitioning unit must send a document identifier code (DIC) Z0A transaction that mirrors the requisition to the TCC Amdahl computer to initiate an obligation. The TCC Amdahl computer will match the OPFAC/fund code combination on the DIC Z0A with a line of accounting data and submit a DAFIS transaction to create an obligation. If the requisitioning unit does not send a DIC Z0A, an obligation will be created when requisition status is received at DAFIS from the TCC Amdahl computer.

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[3] At the time of this report, SALTS was being tested on the USCG cutters *Jarvis, Polar Star,* and *Polar Sea.* We discuss SALTS in more detail later in this report.

Since the DAAS edit check does not validate fund codes, the requisitioning unit may send a message or DAMES requisition with an improper fund code and the source of supply will process the requisition, issue materiel requested, and bill the FINCEN for the requisitioned materiel. When the bill for the materiel is submitted with an improper fund cited, the FINCEN is required to manually research the transaction to determine what account to charge because an obligation has not been created.

MODERNIZATION OF THE DEFENSE LOGISTICS STANDARD SYSTEM

The Coast Guard obtains much of its reparable and consumable materiel support requirements from the Military Services and other Federal agencies. The current Coast Guard requisition system conducts its logistics communications (both intra-Coast Guard and interagency) in conformance with long-established Department of Defense (DoD) procedures. In the remainder of this chapter, we review these DoD procedures and describe DoD plans to modernize them. The Coast Guard must evaluate whether to incorporate those changes into the MMS and the supply center modernization, and if they are to be added, how and when to do so.

Background to the Defense Logistics Standard System

The DoD uses the "single-item manager" concept to manage its materiel. Under that concept, management of each item used by DoD is assigned to the Defense Logistics Agency (DLA), a Military Service, the General Services Administration, or some other agency. This centralized management of materiel requires a great deal of communication between item managers and requisitioners.

To facilitate those communications, DoD established the Military Standard Requisitioning and Issue Procedures (MILSTRIP) in July 1962. MILSTRIP defines standard formats and procedures for requisitioning materiel and designates the medium for transmitting the data that will be entered into computer systems.

Because of the success of MILSTRIP, DoD developed additional systems to define procedures in the following functions:

♦ Inter-Service billing — Military Standard Billing and Fund Transfer Procedures (MILSBILLS)

♦ Inventory management — Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP)

♦ Supply system performance evaluation and management reporting — Military Standard Supply and Transportation Evaluation Procedures (MILSTEP)

◆ Discrepant materiel — Report of Discrepancy (ROD) which is renamed Supply Discrepancy Report (SDR)

◆ Transportation — Military Standard Transportation and Movement Procedures (MILSTAMP)

◆ Contract management — Military Standard Contract Administration Procedures (MILSCAP).

These procedures are collectively known as the Defense Logistics Standard Systems (DLSS). Figure 2-3 illustrates the many data exchanges that occur within the DLSS.
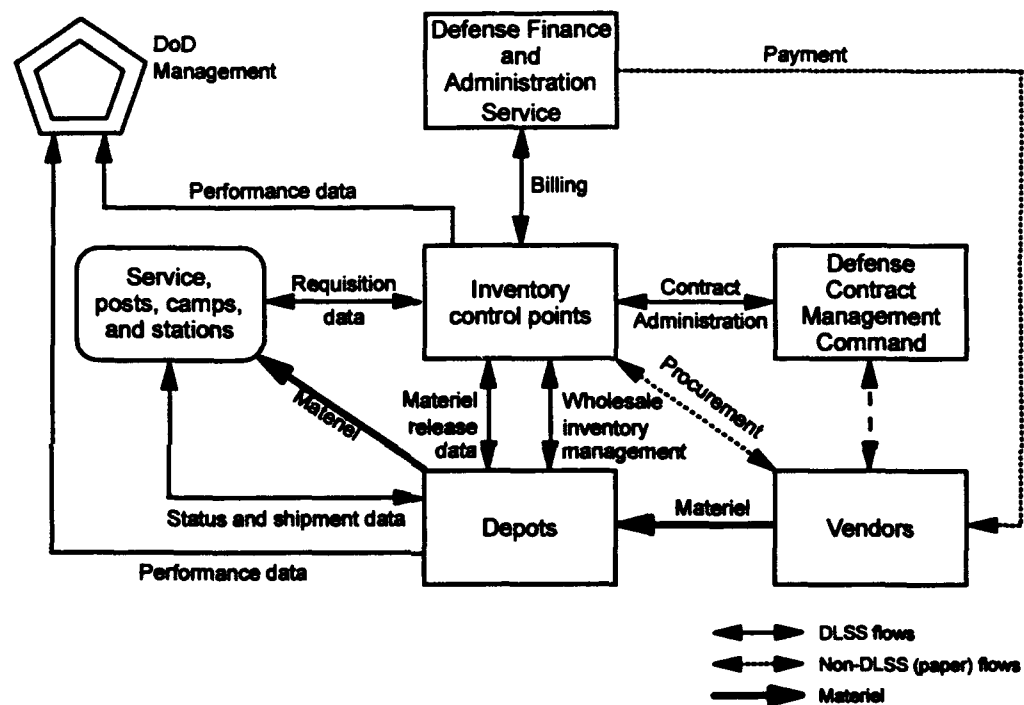
Figure 2-3.
Overview of DLSS Environment

New User Requirements

The concepts introduced by the DLSS in 1962 put DoD at the leading edge of logistics technology. However, today, the DLSS and many of their supporting automated data processing (ADP) systems remain about as they were at their inception. In those intervening 30 years, computer and telecommunications technology grew enormously, and improvements in logistics management techniques paralleled that growth. That revolutionary growth spurred increased demands for logistics data that the DLSS cannot readily support. These demands come from the spectrum of participants such as unit supply officers, high-level

civilian and military managers, auditors, and Congress. These demands include the following:

◆ Better inventory management to reduce system costs

◆ On-line access to the logistics status of materiel and of specific transactions

◆ Production, stockage, and in-transit visibility information on key supply items

◆ New methods of controlling supply items (such as parts pooling version to most-critical need, or associated weapon system).

Development of the Defense Logistics Management System

The DoD responded to the need to meet user requirements and capitalize on new technologies by initiating the Modernization of the Defense Logistics Standard Systems (MODELS) program. A DoD memorandum defines MODELS as "not merely an update of assorted procedures but a fundamental redesign of the way DLSS functions are performed." Subsequently, to reflect the fundamental change planned for the system, DoD assigned a new name to the DLSS process, the Defense Logistics Management System (DLMS).

A key accomplishment of the program is replacing the DLSS fixed-length formats with a variable-length format. The American National Standards Institute's (ANSI) Accredited Standards Committee (ASC) X12 standards for electronic data interchange (EDI)[4] offered a broad base of business transactions to support MODELS. More than 425 DLSS fixed-length formats were consolidated into approximately 25 X12 transactions.

The conversion from fixed-length format to the EDI format did not consist solely of mapping the old transactions into new ones. More than 200 requests for additional data and new capabilities were submitted and reviewed by the Defense Logistics Management Standards Office (DLMSO) and the Services and agencies in DoD. More than 100 of these have been incorporated into DLMS Version 2.0. The Coast Guard has fully participated in the development and review of the DLMS.

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[4] EDI is the computer-to-computer exchange of business documents electronically between organizations using a standard format. Its use eliminates delays and expenses associated with manual handling of paper forms and also reduces costs and improves organizational efficiency. It has been used widely within industry for a number of years. The Federal Government, including the Coast Guard FINCEN, is making increasing use of it. The DLSS are in fact an early version of EDI that use DoD proprietary standards rather than the commercial ASC X12 standards.

Most of the DLMS-related transaction sets were published as ASC X12 EDI standards, Version 3, Release 3, in December 1992.[5] Incorporation of the balance of DoD's DLMS requirements into the ASC X12 standards should be published in the December 1993 release.

DEVELOPMENT OF DOD MANUALS AND IMPLEMENTATION CONVENTIONS

The establishment of the initial DLMS transaction sets within the ASC X12 standards represents just the first step in the MODELS development effort. To ensure effective use of the new transaction sets, DLMSO has taken the lead to do the following:

◆ Rewrite the several DLSS manuals into a single DLMS manual to reflect the new transactions and to establish policy on new data elements and revised procedures

◆ Develop implementation conventions describing the specific data elements and codes that will be used for conveying DLMS data.

Currently, DLMSO is developing the draft DLMS manual that includes implementation conventions. The manual with implementation conventions is due to the Joint Logistics Systems Center and the Defense Distribution System Center by June 1994. The draft implementation convention for the requisition is currently available, and most of the remaining MMS-related transaction sets should be available to the Coast Guard by the fall of 1993.

INTEGRATION WITH OTHER INITIATIVES

The DLMS cannot be viewed in isolation. It is an integral part of DoD's overall effort to utilize standard approaches and to improve performance while reducing costs. Other initiatives include the following:

◆ *Federal Information Processing Standard (FIPS) 161.* FIPS 161 defines the ASC X12 as one of the two approved standards for Federal use of EDI.

◆ *Corporate Information Management (CIM).* The CIM initiative is intended to dramatically reduce the number of redundant ADP systems and replace them with standard DoD systems. CIM system development for the materiel management functional area is being directed by the Joint Logistics Systems Center [for inventory control point (ICP) systems] and the Defense Distribution System Center (for depot systems).

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[5] Accredited Standards Committee. *Electronic Data Interchange X12 Standards, Draft Version 3, Release 3, Volume 1.* Data Interchange Standards Association, Inc., December, 1992.

◆ *Computer-aided Acquisition and Logistics System (CALS).* CALS will be used to exchange technical and engineering data among Government and industry computers. CALS will use EDI transactions as the basis for exchanging data.

◆ *Defense Management Report Decision (DMRD) 941.* The DMRD and other DoD policy directs the Defense Components to implement EDI and specifically cites 20 DoD forms that are to serve as the initial efforts to replace paper forms with electronic transactions. The DMRD provides the Components with investment dollars and budget reductions based on estimated savings.

The forms specified in DMRD 941 are used in such functional areas as supply, maintenance, transportation, and procurement. The procurement area uses both the highest volume of forms and consequently offers the greatest potential savings. All of the Services and DLA have initiated projects to use ASC X12 standards to exchange procurement, payment, and transportation data with industry. These projects are being implemented at both the wholesale (ICP) and retail levels.

The Defense Information Systems Agency (DISA) plans to establish contracts with commercial suppliers of information services [typically called value-added networks (VANs)]. DoD activities would forward EDI transactions to one of four DoD distribution points[6] that in turn pass the transactions to the VANs. For retail procurement, the VANs will generally place solicitations on a bulletin board where they can be reviewed by a large number of vendors who can respond with electronic bids. Early experiments, including the Navy's electronically assisted solicitation exchange (EASE) and the Air Force's Government acquisition through electronic commerce (GATEC), have shown that substantial cost savings can be obtained.

As Figure 2-3 shows, the flow of data among DoD Components using DLSS (DLMS in the future) and the exchanges of logistics data between DoD Components and industry. These paper exchanges will be replaced by EDI. Successful implementation of the DLMS and EDI exchanges with industry will unify the format of both internal and external DoD logistics data exchanges under the ASC X12 EDI standards.

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[6] Defense Automatic Addressing System Center and the Aviation Supply Office will be the first two distribution points.

Major Materiel Management System Requirements, Issues, and Recommendations

INTRODUCTION

The future Coast Guard requisitioning system, MMS, will collect historical and tracking information on all requisitions and commercial procurements and, in addition, will provide all the functions currently provided by ARMS. It will create transactions, transmit and receive information, and store information for requisitioning and commercial procurements. Coast Guard units will use MMS to create DLSS/DLMS requisitions. It will transmit requisitions to DAAS, financial obligation information to the financial system, requisition status from DAAS to Coast Guard units and the financial system, requisition and commercial purchase information to historical and tracking files, and shipping and staging information to central tracking files. It will maintain a data repository of active and historical information and will answer users' queries on shipment tracking information, requisition status, and historical requisition and commercial procurement information.[1]

In brief, MMS will do the following:

◆ Transmit valid financial information to the financial system

◆ Collect requisition and commercial procurement data

◆ Transmit requisitions from all Coast Guard units in all foreseeable situations

◆ Be DLMS Version 2.0 capable.

Those four activities are discussed in the remainder of this chapter. We discuss our findings, conclusions, and recommendations for each activity.

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[1] *Fleet Logistics System (FLS) Conceptual Architecture Report (CAR)* (draft), Volpe National Transportation Systems Center, 4 December 1992.

FINANCIAL REQUIREMENTS

As the replacement system for ARMS, MMS must be capable of transmitting valid requisition-related financial information. The information received from MMS must be accurate and in a format understandable to the financial system.

The financial system requires each requisition created by a Coast Guard unit to identify the account, represented by a nine-data-element line of accounting data, that will pay for the requisitioned item and how much the requisitioned item will cost. The line-of-accounting data consists of the following nine data elements:

- Agency

- Region code

- Appropriation code

- Appropriation limitation code

- Allotment fund code

- Program element

- Cost center

- Object class

- System data.

The current Coast Guard requisitioning process uses a two-digit fund code[2] in combination with the requisition's OPFAC[3] to identify the appropriate accounting data. The requisition's fund code and OPFAC combination tells the ARMS computer at TCC which line of accounting data to utilize and transmit to the financial system.

Each unit is assigned several lines of accounting data to charge goods and services. For a typical unit, the object class[4] used to designate the obligation classification for the requisitioned item is the only data element that is different between lines of accounting data.

Because neither the OPFAC nor the fund code by itself provides sufficient information for the FINCEN to identify the correct line of accounting data to

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[2] A fund code is a two-character alphanumeric code (created by the FINCEN) that in combination with the requisition's OPFAC identifies a line of accounting data.

[3] The OPFAC is identified in the requisition number field of each requisition.

[4] The object class is a four-digit code classifying the nature of costs incurred for obligations and expenditures. Object classes identify costs such as services, travel, supplies, and materiels.

charge, the FINCEN has a fund code table that links the requisition's OPFAC and the fund code to a line of accounting data. The OPFAC/fund code table is used by the ARMS computer to identify the line of accounting data to send to the DAFIS computer center to create an obligation and by the FINCEN to charge a line of accounting data when a bill is received for a DLSS requisition or an invoice is received for a commercial procurement.

The current OPFAC/fund code table has at least one OPFAC/fund code combination for each line of accounting data. An OPFAC/fund code combination is assigned every time a new line of accounting data is established or at the beginning of a new fiscal year. Additionally, lines of accounting data that can be charged by more than one requisitioner are assigned multiple OPFAC/fund code combinations. For example, when a requisitioner, such as a district office, requisitions an item for another Coast Guard unit and charges the line of accounting data for that unit, a fund code must be assigned to the OPFAC of the district office.

Additionally, the FINCEN uses the OPFAC/fund code table for more than creating obligations. The table is used to modify the obligation when the requisitioned item's price or quantity changes and to pay bills. Both of these transactions require that the line of accounting data be included in the DAFIS transaction. The FINCEN uses the OPFAC and fund code combination from either the DLSS status transaction or the MILSBILLS Form 1080 to identify the proper line of accounting data to charge.

The financial system places two additional requirements on the information that it receives from the requisitioning system. First, the line of accounting data cited by requisitions must be valid, and second, obligation information must be transmitted to the DOT financial system in DAFIS format.

Financial Data Edit Check

A financial data edit check is necessary to ensure the accounting data cited on the requisition is valid because passing invalid obligation information can be expensive when compared to the cost of an edit check. If the requisitioner cites an improper account, the FINCEN must manually research and correct the error before payments can be processed, an activity that can take several hours. On the other hand, invalid financial information that is returned to the unit can be corrected in minutes.

The current requisitioning system, ARMS, checks the validity of the requisition's financial information on the TCC Amdahl computer before forwarding the information to the financial system. The edit check compares the OPFAC/fund code combination on the requisition to the OPFAC/fund code table. If the requisition passes this edit check, it is forwarded to the source of supply. If it fails, it is returned to the requisitioner for correction.

The financial information on requisitions sent directly to DAAS is not edited before the requisitions are forwarded to the source of supply. Both Coast Guard and other Government agency sources of supply will process requisitions regardless of the fund code cited on the requisition. Should these requisitions possess invalid financial information, the FINCEN must perform manual research to identify the proper line of accounting to charge for the requisitioned item.

Because of the extra effort required to correct transactions with invalid information, we believe that all data edit checks should be done at the point at which data are entered into the system. That procedure will allow incorrectly input data to be corrected immediately at the unit level. Also a unit-level edit check minimizes the time necessary to correct errors so that requisitions are processed in a timely manner while eliminating the need for extensive manual rework when erroneous data enter the system.

A drawback of the unit-level edit check of the financial data in its current form is that it requires more computer and manpower resources than does the centralized edit check. Computer software must be written and distributed to each unit performing the edit check. The edit-check table and software should be designed to run on the existing unit-level computer hardware. Additionally, the edit-check software must be maintained at each of the MMS sites.

The edit-check concerns and constraints mentioned above highlight two problems with placing the financial data edit check at the unit level in its current form. The OPFAC/fund code table in its current form is large (27,000 fund codes) and would place a strain on unit-level hardware capacity. Additionally, the unit-level maintenance required to make changes to the table would be excessive. The maintenance of such a table would require the units to upgrade their edit tables each time a change is made to the table.

We believe the Coast Guard should develop an alternative to the OPFAC/fund code table that implements a unit-level edit check and avoids the problems described above. In the next subsection, we discuss the standardized fund code, an alternative that we believe will allow the financial data edit check to be performed at the unit level.

STANDARDIZED FUND CODE

The current OPFAC/fund-code-table concept and associated ongoing maintenance can be eliminated by taking the following actions:

♦ Create a unique fund code for each object class and allotment fund code (AFC)[5] combination

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[5] The AFC identifies an operating expense appropriated funds category. For example, AFC-42 is assigned to the electronics program.

◆ Include the program element, cost center, appropriation code, region code, and system data as part of the requisition.

To standardize fund codes, one will be assigned to every AFC/object-class combination in use for requisitioning. On a requisition, the fund code will represent both an AFC and an object class. For example, Object Class 2691 represents Navy nonaviation electronic depot-level reparables. Both AFC-30 and AFC-42 can be used along with this object class in a line of accounting data. Thus, a separate fund code will be assigned for each combination. In this instance, two fund codes will be assigned — one for the combination of AFC-30 and Object Class 2691 and another for the combination of AFC-42 and Object Class 2691.

With standardized fund codes in addition to program element, cost center, appropriation limitation code, region code, and system data information included on the requisition, the FINCEN will have all necessary information to assemble a full line of obligation accounting data.

To show how the standardized fund code concept works, we will use an example of a unit requisitioning an item (Figure 3-1). Assume fund code SA is used to represent Object Class 2634, housekeeping supplies and materials for shore units and cutters, and AFC-30. When a unit, whose OPFAC is 51241, requisitions a housekeeping item for itself using AFC-30 funds, it would use fund code SA on the requisition. The region code (3), appropriation code (301), program element (CG), and cost center (51241) would be included on the second 80-character image. From that information, the FINCEN would be able to assemble the line of accounting data from the requisition.

Requisition Data Line of Accounting Data

Examples:

From the requisition:
 SA (fund code)

From the trailer card:
 3 (region code)
 301 (appropriation code)
 CG (program element)
 51241 (cost center)
 ——— (system data)

Financial translator

Example:

2 (agency code)
3 (region code)
301 (appropriation code)
103 (appropriation limitation code)
300 (allotment fund code)
CG (program element)
51241 (cost center)
2634 (object class)
——— (system data)

Figure 3-1.
Translating Requisition Information into Line of Accounting Data

Until the Coast Guard converts its transactions to DLMS, a second 80-character image will be used to transmit the additional data within the Coast Guard, but only the information on the standard requisition will be sent to the source of supply. The standard requisition plus the 80-character image will be sent to the FINCEN.[6] (*Note:* Under DLMS, the additional data can be easily

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[6]The two 80-character images are related to each other by the common requisition number on both 80-character images.

accommodated as Service-specific data and made part of the Coast Guard standard requisition format.)

Subsequent DLSS transactions, such as price and quantity changes, cancellations, and bills received from the source of supply, will require the original obligation to be modified or expended. Until DLMS Version 2.0 is implemented, these transactions will only contain the standard requisition data, and a full line of accounting data can only be created by accessing data from the original requisition. To do so, a system that links these new transactions to the line of accounting data on the original requisition must be created. Then, when the Coast Guard FINCEN received a DLSS transaction that modifies the obligation, the transaction will be crossed to the line of accounting data used to create the original obligation. After the implementation of DLMS Version 2.0, the additional financial information will be included in the transaction.

The system that identifies the line of accounting data for those transactions that modify or complete an obligation must create a file to link the line of accounting data with the requisition number. The file will cross-reference the document number from the obligation modification transactions to the original line of accounting data. All obligation modification transactions from the source of supply and the requisitioning unit are processed automatically by DAAS. Those transactions can be automatically sent and processed by the system that links the document number to the line of accounting data. Bills that complete the obligation are typically sent directly to the FINCEN from the source of supply in a nonautomated format. This file should either be physically located with, or be accessible to, the DAFIS translator that we discuss later in this report.

CONCLUSION

By adopting the standardized fund code described above, the Coast Guard can perform the financial data edit check at the unit level; that action will reduce the total number of Coast Guard fund codes and facilitate training in the use of fund codes because the same fund code relationship will apply to every unit in the Coast Guard.

RECOMMENDATION

We recommend that the Logistics Management Division (G-ELM), Office of Engineering and Logistics Development (G-E), working in partnership with the Financial Management Division (G-CFM), place the responsibility for the requisition-related financial data edit check at the unit level. At that level, if data are incorrectly input, they can be corrected immediately. A unit-level edit check will minimize the time necessary to correct errors so that requisitions can be processed in a timely manner and the need for extensive manual rework when erroneous data enter the system will be eliminated.

We recommend that the Financial Management Division (G–CFM) eliminate the OPFAC/fund code table and replace it with the standardized fund code proposed here. Implementation of the standardized fund code will require the following actions:

◆ The Coast Guard must standardize relationships between fund codes, object classes, and AFCs.

◆ The units must include the following additional information with the requisition:

▶ Program element

▶ Cost center

▶ Appropriation limitation code

▶ Region code

▶ System data.

◆ The capability to convert requisition financial data into a full line of accounting data must be developed.

◆ A link must be maintained between obligation data and requisition number.

DAFIS Format

The DAFIS was developed in 1986 as the replacement system for the Uniform Accounting System. DAFIS is the DOT's single data base for financial information. All agencies within the DOT, including the Coast Guard, are required to submit their financial and accounting transactions to the DAFIS computer center in Plano, Texas. DAFIS provides on-line access for inquiries and standard reports to Coast Guard financial managers.

Currently, the TCC Amdahl computer creates and transmits a 320-character, fixed-length, DAFIS-formatted transaction for every DLSS requisition it receives. When the TCC Amdahl computer receives a DLSS transaction, it matches the transaction's OPFAC/fund code combination to the fund code table to identify the line of accounting data it should include on the transaction. The TCC Amdahl computer then converts the incoming DLSS transaction type into a corresponding DAFIS-formatted transaction type (e.g., it generates an obligation transaction when a requisition is received).

The MMS will continue to provide requisition-related financial information to the DAFIS computer center in DAFIS format. It must generate a DAFIS-formatted transaction for every DLSS transaction that affects the financial system (requisition, price change, quantity change, or cancellation).

The two alternative approaches for transmitting requisition-related information to DAFIS are as follows:

- Generate and transmit DAFIS-formatted transactions from the source of the DLSS transaction

- Develop a translator for the front end of DAFIS to interpret the DLSS transaction and create a DAFIS-formatted transaction.

TRANSMITTING DAFIS TRANSACTIONS FROM THE SOURCE

Under the first alternative, the creator of any MMS transaction requiring financial system updates sends a DAFIS-formatted transaction to the DAFIS computer center to report that transaction. That procedure differs from current ARMS practices in which all requisition-related DAFIS input transactions are created and sent from a central source.

In this alternative, for example, when a requisition is created, the requisitioner will not only submit the requisition via DAAS to the source of supply, but will also transmit a 320-character DAFIS-formatted obligation transaction to the DAFIS computer center. The same procedures will be implemented for the transmission of any requisition status transactions from the source of supply having financial impacts. The source of supply will send a DAFIS-formatted transaction to the DAFIS computer center in addition to the DLSS status transaction.

DAFIS TRANSLATOR

The second alternative for providing requisition-related financial information to the DAFIS computer center is to develop a DAFIS translator. The translator software will be able to convert the incoming DLSS transaction (in either DLSS or DLMS format) and its line of accounting information to a 320-character DAFIS transaction.

The translation process must be sequentially performed after the line of accounting data from the original requisition has been identified. The primary functional consideration is that the translator connect the requisitioning and financial systems by being capable of receiving requisition-related financial information from both the requisitioner and the source of supply.

CONCLUSIONS

We believe the DAFIS translator is the most practical way to send all DAFIS-formatted, requisition-related transactions to the DAFIS computer center.

We further believe the scope of MMS enables it to create a procedure to transmit DAFIS-formatted transactions from Coast Guard requisitioning units.

However, it would not be practical or possible to require other Government agencies to create and transmit DAFIS-formatted transactions because those transactions are beyond the scope of envisioned capabilities, and DAFIS format is not compatible with either the DLMS or DLSS transaction formats. The translator would be invisible to the users of MMS. It would interpret exiting transactions and would not force users of MMS (especially other Government agencies) to alter the format of their communications transactions. Requisition-related transactions in DLSS format can be processed the same for the Coast Guard as any other Federal requisitioner.

We believe that the translator should be capable of converting all requisitions, modifications, cancellations, and bills into a DAFIS transaction. It should be collocated with, or communicate with, the process that converts information on requisition transactions into lines of accounting data. It should be able to receive requisition transactions from Coast Guard units, requisition modification and cancellation transactions from DAAS, and billing information from the FINCEN.

RECOMMENDATION

We recommend that the Coast Guard develop and maintain translator software to convert DLSS transactions into DAFIS-formatted transactions. The DAFIS translator must be capable of recognizing and converting transactions in both DLMS and DLSS formats.

Location of the Financial Translators

We recommend that the Coast Guard establish two translators to interpret and convert financial information. Those translators represent two steps in the financial translation process that converts requisition transactions into formats understandable to the DOT financial system. The first step of this financial translation process interprets the financial information on a requisition and creates a line of accounting data; the second step converts the transaction and line of accounting data into a DAFIS transaction. The financial translator must also maintain a file that links the requisition's document number with the obligation's line of accounting data so that the proper line of accounting data can be identified on subsequent modifications. In the following subsections, we discuss the merits of two alternative locations for the financial translator.

FINANCIAL TRANSLATOR AT A CENTRAL LOCATION

In this alternative, the financial translator would not be located at the FINCEN but rather at another single central site possessing adequate computer resources.[7] All MMS transactions that affect financial obligations would be

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[7] TCC and the Operations Systems Center, Martinsburg, W. Va., may be examples of central location alternatives that possess adequate computer resources.

routed to this translator so that a DAFIS transaction could be created. The primary benefit of using a central site is that by utilizing its current computing facilities, the Coast Guard would not have to acquire additional computing capacity.

The bill-paying process is a major obstacle to placing the financial translator at a central site. Bills that complete the obligation are sent to the FINCEN in a non-uniform format. They are received electronically and by mail in paper form. To complete the bill-paying process, the FINCEN must have access to the transaction stored at the central site. Additionally, the FINCEN would have to develop a capability to update the central site with the data needed to create DAFIS expenditure transactions.

FINANCIAL TRANSLATOR AT THE FINANCE CENTER

In addition to submitting transactions to DAFIS for requisitions, the FINCEN submits obligation transactions for commercial purchases. The requirement to submit those obligation transactions will continue regardless of where the financial translator is located. Placing the financial translator at a site other than the FINCEN would entail duplicative processes.

The FINCEN does not have sufficient computer resources to accommodate the financial translator. If the financial translator is placed at the FINCEN rather than at another site, the FINCEN will have to acquire additional computer capacity.

CONCLUSION

We believe that placing the financial translator at a central site will unnecessarily duplicate processes. We recommend that the financial translator be placed at the FINCEN for the following reasons:

◆   Billing data are not submitted in a standard format. Thus, if the financial translator were placed at a central site, the FINCEN would have to access and interpret central site transaction data for the FINCEN to complete the bill paying, and it would subsequently have to input the data the central site needs to create the DAFIS expenditure transaction. The organization to perform those actions exists at the FINCEN and will remain there to input commercial billing information.

◆   The Coast Guard should maintain a single interface with DAFIS. Regardless of where the financial translator is located, the FINCEN will continue to input commercial purchase transactions to DAFIS.

> *We recommend that the Coast Guard place the financial translator at the FINCEN.* The financial translator must be capable of converting requisitions into a full line of accounting data and creating a DAFIS input transaction.

DATA-COLLECTION REQUIREMENT

Materiel Management System

The requirement that MMS capture and record requisition and commercial purchase information is an important feature that distinguishes it from ARMS. In addition to transmitting requisitions as ARMS does today, MMS will maintain a data base that will collect and provide access to the following:

◆ Historical, unit-level requisitioning and commercial-purchase information

◆ Current status of unit-level requisitions and commercial procurements

◆ Staging information on materiel for use in scheduled maintenance or in transit to afloat units.[6]

The MMS data base will provide data for supply managers to use for requisitioning and supply system performance analysis. It can, for example, be used to identify the responsiveness of the requisitioning system in terms of time necessary to process requisitions or the responsiveness of the supply system to unit needs. It will also provide visibility of active requisition and commercial purchase actions. That will allow unit, maintenance, and supply managers to track the status of procurements from the time the item is ordered until it is received.

On many occasions, such as a maintenance availability and overhauls, materiel requirements are identified and requisitions are placed well in advance of the date the materiel is needed. As the requisitioned materiel arrives, it is stored by various activities until it is needed to perform the maintenance action. The MMS data base will provide storage information to account for such items being held for scheduled maintenance. In addition to scheduled maintenance availabilities, the MMS data base will also maintain staging information for materiel awaiting the return of an afloat unit from a deployment.

Parts Tracking System

Concurrent with our analysis of the requirements of MMS, the Vessel Division of Maintenance and Logistics Command Atlantic [MLCA(v)] and VNTSC have defined the requirements for a repair Parts Tracking System. The objective of the Parts Tracking System is to "track the status of Government Furnished

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[6] *Fleet Logistics System (FLS) Conceptual Architecture Report (CAR)* (draft), op. cit.

Equipment (GFE) for availabilities and parts to restore unit casualty reports (CASREPs) over the complete parts tracking life cycle."[9]

The Parts Tracking System (Figure 3-2) defines a set of life cycle processes that materiel needed for availabilities and CASREPs follow. The life cycle starts with the identification of the necessary parts for the maintenance and continues through the final disposition of the materiel. The Parts Tracking System provides managers visibility of repair parts as they process through the stages of the Parts Tracking System life cycle.
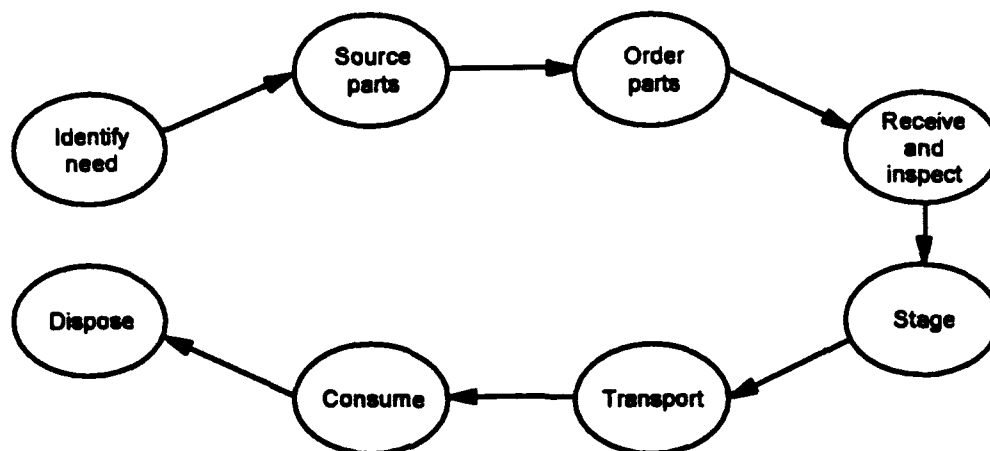
Figure 3-2.
Parts Tracking System Life Cycle Processes

Functional Differences Between the Materiel Management System and the Parts Tracking System

The Parts Tracking System and MMS have several areas of common interest. They both seek to provide visibility of materiel movement during the requisitioning and commercial purchasing processes. The difference between the two systems is in the range of materiel tracked. MMS seeks to provide visibility of all materiel being acquired by Coast Guard units; the Parts Tracking System addresses only materiel needed for availabilities and CASREPs.

Additionally, the Parts Tracking System maintains visibility over more processes than does MMS. MMS visibility begins at the point at which a requisition is created, while the Parts Tracking System includes planning processes involving the identification of the materiel need and source of supply. MMS stops tracking items when the materiel is delivered to the end user.

[9] *Parts Tracking Requirements Study — Interim Requirements Analysis Briefing,* Battelle Memorial Institute, 10 March 1992.

Alternative Data-Collection Systems

In the next two subsections, we describe two alternatives for collecting data generated by MMS: the Logistics Information Processing System, and the logistics intelligence file.

LOGISTICS INFORMATION PROCESSING SYSTEM

In addition to processing and forwarding transactions, DAAS is responsible for archiving them and providing management information on supply system operations. In the past, the archiving medium has been magnetic tape. Future operations, however, will provide interactive availability of transactions via the Logistics Information Processing System (LIPS) for several months and long-term archiving on optical disks. Data can be retained on optical disks for longer periods and is more readily available to meet user requirements.

The LIPS is a new service that will be offered by the Defense Automatic Addressing System Center (DAASC). It will be an on-line interactive data base of all transactions that pass through DAAS. The following are some of its key characteristics:

◆ It operates on an IBM mainframe computer using the DB2 data base management system.[10]

◆ It supports the standard query language with both standard query screens and user-defined queries. It generates standard and custom reports.

◆ Beginning early in FY94, its data base will be available 24 hours a day, every day.

◆ Communications can be through the Defense Data Network or any commercial means to the system telephone number in Dayton, Ohio. Any terminal that can emulate a 3270/ASCII (American Standard Code for Information Interchange) protocol can be used to access the system.

◆ Transactions remain on the system for varying lengths of time but typically for 90 – 120 days.

◆ Security level is C2 based on National Security Agency classification levels. Access is based on user identification and password.

The most significant retention period from an MMS viewpoint is that for the requisition. Requisitions, follow-ups, supply status, and shipment status transactions will be maintained on the system. They will be maintained on line for

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[10]DB2 is a proprietary IBM Corporation mainframe computer data base management system.

120 days after closeout. When transactions are moved off line, they are transferred to optical disks where they can still be accessed.

The DAASC can provide custom support to meet Coast Guard-unique requirements. Charges to the Coast Guard for either standard or special services would be negotiated through an interagency agreement.

Another facet of LIPS will be its effect on the Military Standard Evaluation Procedure, which provides management information to Service, agency, and Office of the Secretary of Defense managers on the performance of the DoD supply system. Currently, DoD ICPs, depots, and other activities provide data to DAASC that consolidates the information and provides it to DoD managers. Historically, such information has been provided in the form of voluminous data-filled reports. The implementation of LIPS and associated software tools will allow DAASC to tailor reports in terms of data to be presented and presentation format.

LOGISTICS INTELLIGENCE FILE

An LIF is a generic term used for a file such as LIPS to collect logistics data. LIFs are used by several Services within DoD to capture Service-specific logistics information. In this subsection, we show an example of how the Army uses an LIF and how an LIF tailored to Coast Guard needs might look.

Army Logistics Intelligence File

The Army Materiel Command maintains an LIF at its Logistics Control Activity (LCA) at the Presidio of San Francisco, Cal.[11] The LIF is the Army's central data bank for supply and transportation information, and it provides visibility of requisitions and shipments as they are processed.

The LIF provides materiel visibility to units and various supply mangers throughout the Army. Information is provided to the LIF at each step of the requisition cycle from the time the requisition is created until the materiel is received by the requisitioner. Data are input to the LIF from DAAS, from activities that consolidate materiel and shipments along the transportation pipeline, from ports of embarkation for overseas shipments, and from ports of debarkation. Each of those activities sends electronic transactions to the LIF to update the status of the materiel.

Information in the LIF is accessible 24 hours a day in standard or custom designed periodic reports and on-line inquiry. Inquiry methods range from batch

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[11] Army planning for consolidations and reorganizations includes relocating the LCA and consolidating it and several field agencies to form a new Logistics Operations Support Activity. One location being considered is Huntsville, Ala. The Army plans to continue operating the LIF until a final decision is made on integrating it into LIPS.

AUTODIN requests from field units that have many requests to interactive inquiries from remote sites having few requests.

Coast Guard Logistics Intelligence File

Using the example of the Army's LIF, we can generalize the LIF concept and apply it to the Coast Guard's specific needs. The CGLIF will be the central source of tracking and historical information on requisitions and commercial procurements. It will be designed around data received from the requisition and commercial procurement processes. The CGLIF will receive copies of all transactions from the requisitioning process and create a record for a particular requisition so that it may be tracked. After the materiel has been received by the end user, the record will be closed and archived into the historical file. Figure 3-3 shows how inputs will be received by the CGLIF.
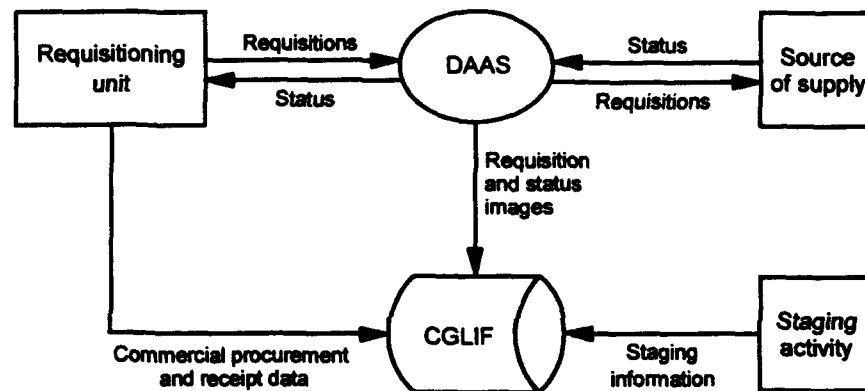
Figure 3-3.
Flow of Input Data to the CGLIF

The DAAS will be instructed to send the CGLIF a copy of all Coast Guard transactions that it receives. When a requisition is created, DAAS will send a copy of the requisition to the CGLIF as it passes the requisition to the source of supply. Similarly, it will send the CGLIF a copy of all status transactions received from the source of supply. When the source of supply ships an item to an intermediate destination, such as a shore support activity, that activity sends CGLIF a transaction to update the status of the requisition.

The MMS and/or associated Coast Guard unit procurement systems will generate transactions conveying commercial purchase data. The initiating unit may transmit those actions to the CGLIF either through DAAS or directly.[12] The

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[12] The method used to transmit commercial purchase information from the unit to the CGLIF depends on future telecommunications decisions. Additionally, a possible alternative to the unit inputting commercial purchase transactions, is to have the CGLIF periodically draw data from the unit.

transactions may be submitted in any format convenient to the Coast Guard. However, using ASC X12 EDI would be an effective choice if the Coast Guard implements EDI in commercial procurement. In addition to reporting and updating the procurement action, intermediate destinations will report the receipt and disposition of the materiel received from commercial purchases in the same manner as requisitions. All commercial purchase transaction formats must be developed by the Coast Guard and must contain information necessary to both track the status of the item and analyze the purchase from an historical perspective.

After the procurement transaction (requisition or commercial purchase) is completed, the CGLIF record will be archived, and the historical records maintained by the CGLIF will be available for future analysis.

The information in the CGLIF can be made accessible to anyone. Various individuals within the Coast Guard, from unit-level personnel to supply and maintenance managers at Maintenance and Logistics Commands and Headquarters, are expected to have some access to the data. The information that a particular individual can access and the media used to access the CGLIF must be established on the basis of user needs. Some of the numerous ways that designated users can access the CGLIF data base are as follows:

◆   Batch or interactive electronic inquires through the standard workstation

◆   Automatic generation of standard periodic reports

◆   Voice telephone or electronic mail inquiries to a customer service organization that has access to the CGLIF.

As the FLS is built, the Coast Guard can use the CGLIF data in other FLS applications such as the performance management application. That application will be used to evaluate logistics system performance for the critical success factors of each logistics organization. The supply transaction data in CGLIF will be one of several useful data bases needed for the performance management application.

Conclusion

The primary advantage of LIPS is that the Coast Guard will be able to satisfy its need for a data-collection system while taking advantage of economies of scale provided by the DAASC. Because LIPS will be developed by the DAASC and available to all users of DLSS/DLMS, the Coast Guard will only be charged for that portion of the system it uses. The fixed hardware, software development, and management costs will be spread over a wider range of users than if the Coast Guard were to develop a system on its own.

However, LIPS is limited by the same factors that make it a potentially lower cost alternative. Although LIPS can be flexible and provide custom support for Coast Guard-unique requirements, the LIPS data base contains only data from

DLSS/DLMS transactions. Important categories of transactions, commercial purchases, and intra-Coast Guard materiel movement and storage transactions, will not be captured by the LIPS data base.

CGLIF, on the other hand, can be tailored to Coast Guard needs. It can maintain all the information that passes through DAAS and can maintain commercial purchase and staging information. Additionally, the ultimate control over access and maintenance of the data is within the Coast Guard. The establishment of a CGLIF eliminates the risk of losing access to, or control of, MMS data based on decisions made external to the Coast Guard. That consideration is extremely important when using the CGLIF as the source of supply support oversight.

As we previously defined it, MMS will transmit requisitions and collect and provide access to materiel tracking and staging information for requisitions and commercial purchases. In other words, MMS is a subset (order parts, receive and inspect, and stage processes) of the Parts Tracking System.

The maintenance community will be a major consumer of the data provided by the MMS data collection system. The Parts Tracking System is a description of how maintenance managers plan to manage maintenance materiel. It serves as a framework to communicate the materiel needed for maintenance actions, communicate the plans to fill the need, and monitor the execution of the plan. Several processes in the Parts Tracking System life cycle (order parts, receive and inspect, and stage) duplicate MMS processes. To successfully support maintenance planning, the MMS data-collection system should be capable of supporting this system.

Recommendations

We recommend that the Coast Guard establish a logistics intelligence file to capture all requisition and commercial purchase information. The CGLIF should provide historical requisitioning and commercial purchasing data for analysis by supply and maintenance managers. The CGLIF will provide visibility of all active requisitioning and commercial purchasing transactions so that supply and maintenance managers can track the movement of materiel. In addition to tracking materiel, the CGLIF will provide Coast Guard managers the data needed to evaluate commercial and Federal Supply System performance. This data base will contain all requisitioning transactions (e.g., requisition, status, and shipment transactions) and commercial procurement information.

We recommend CGLIF over the LIPS because CGLIF can be tailored to Coast Guard needs. It can capture all commercial purchase and staging information in addition to DLSS transactions. Additionally, the ultimate control over access and maintenance of the data remains within the Coast Guard. The establishment of a CGLIF eliminates the risk of losing access to, or control of, MMS data based on decisions made external to the Coast Guard.

We also recommend that the design of the CGLIF recognize the data requirements of the Parts Tracking System. The Parts Tracking System has a detailed description of how the maintenance community plans to track repair part information. MMS will be a primary source of requisition and commercial purchase information for maintenance materiel.

We recommend that the program manager of the Systems to Automate and Integrate Logistics (SAIL) project monitor the development of both MMS and the Parts Tracking System projects to ensure functional consistency and prevent duplication of process. MMS and the Parts Tracking System contain some common processes. Specifically, the order parts, receive and inspect, and stage process of the Parts Tracking System life cycle defined by the Parts Tracking System are primary MMS processes. MMS is intended to be, and should be, the requisitioning and data-collection system for all Coast Guard materiel. The developers of the Parts Tracking System should recognize that fact and not create a duplicate requisitioning, receiving, and staging system for materiel needed for dockside maintenance, availabilities, and CASREPs. Similarly, the developers of MMS should recognize and include the data requirements of the maintenance community in MMS.

COMMUNICATIONS REQUIREMENTS

Current ARMS procedures require users to send and receive transactions over commercial telephone lines or over an x.25 Coast Guard Data Network connection. To do so, all users must have access to a commercial telephone line or cellular phone for requisitioning. Such access poses no problem to shore units that have available commercial telephone service. On afloat units, however, where commercial telephone lines are in short supply or not available, ARMS requisitioning procedures are impractical.

Because they do not have telephone facilities, afloat units commonly send message requisitions directly to DAAS, which circumvents the ARMS requisition processing. Those requisitions do not pass through the financial edit check, and required financial information is not passed on to the DAFIS computer center to create an obligation before the requisition is received by the source of supply.[13]

A properly designed MMS must be more accessible to users than ARMS. It should provide a communications gateway so that all units can use MMS under normal working conditions. It should evolve to the only requisitioning system used by Coast Guard units ashore and at sea.

The communications capabilities of MMS must be flexible enough to accommodate the needs of both shore and afloat units, and its procedures should be simple enough to encourage its use. Communication procedures that include all units and situations will ensure compliance with MMS procedures. Burdensome

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[13] When the source of supply sends requisition status back to the unit, DAAS sends a copy to ARMS to create an obligation.

communication procedures will discourage units use of MMS and diminish its effectiveness.

The following subsections describe two MMS communication alternatives: sending transactions directly to DAAS and using the Navy-developed Streamlined Automated Logistics Transmission System (SALTS).

Sending Transactions Directly to the Defense Automatic Addressing System

REQUISITIONS

The MMS transactions may be transmitted by sending requisitions directly to the DAAS and using it as a routing hub. It will be requested to send copies of requisitions that it receives to the data-collection system, the financial system, and the source of supply.

As Figure 3-4 shows, the requisitioning unit will send the requisition directly to DAAS, which will be instructed to receive the requisition, send a copy to the CGLIF and the FINCEN, and forward the requisition to the source of supply. Status information coming back from the source of supply will be sent to the requisitioner, the CGLIF, and to the FINCEN (if it contains financial-related information). Requisitioning units at sea will continue to send requisitions to DAAS by message.

COMMERCIAL PURCHASES

The transmission system described in Figure 3-4 can accommodate the requirement of MMS to store and maintain visibility of commercial purchasing information if the Coast Guard requests DAAS to convey those data. Use of this alternative would require the Coast Guard to implement EDI for commercial purchases.

Streamlined Automated Logistics Transmission System

The Navy developed the SALTS in February 1991 during *Operation Desert Storm* to allow Navy and Marine Corps supply officers to transmit logistical information. SALTS provides an alternative to tactical networks for passing logistical and administrative information.

The SALTS is a IBM-compatible, personal-computer (PC) MS-DOS-based communications system that sends requisitions and other administrative information over commercial satellite and telephone communications networks. Using an IBM-compatible PC, SALTS software, a modem, and telephone or communications link to the International Maritime Satellite, a SALTS user transmits administrative messages to the SALTS central computer at the Navy
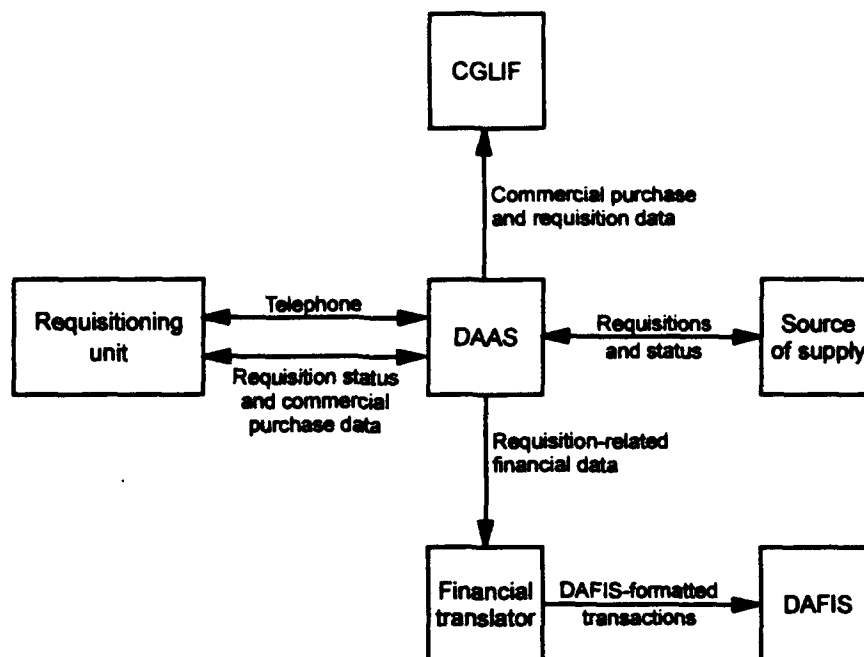
Figure 3-4.
Direct Transmission to DAAS - Data Flow

Aviation Supply Office in Philadelphia. The central computer receives the transmission and routes it to its final destination. In addition to requisitions, SALTS is also used to transmit financial and personnel transactions as well as electronic mail messages to other SALTS users.

Transaction routing by the SALTS central computer is completely automatic. It is solely a "routing hub." As does the Postal Service, it reads the address on the incoming transactions from SALTS users and delivers them to the addressee. SALTS central computer creates an electronic post office box to hold transactions for SALTS users. Those transactions sit in the electronic post office awaiting retrieval by users during their next transmissions.

The flexibility that SALTS provides satisfies the communications requirements of MMS. It is always available; it is accessible from remote locations using commonly available technology; and it provides many users with access to the requisitioning system through a single system. The USCGC *Jarvis* (WHEC 725) has had SALTS capability since October 1992 when the Navy provided the hardware, software, and training necessary for its use. The experience of the USCGC *Jarvis* has been positive. SALTS is used both in port and underway to transmit requisitions, receive requisition status, and send messages to other SALTS users. Figure 3-5 shows the MMS transaction flow using SALTS as a communications gateway.
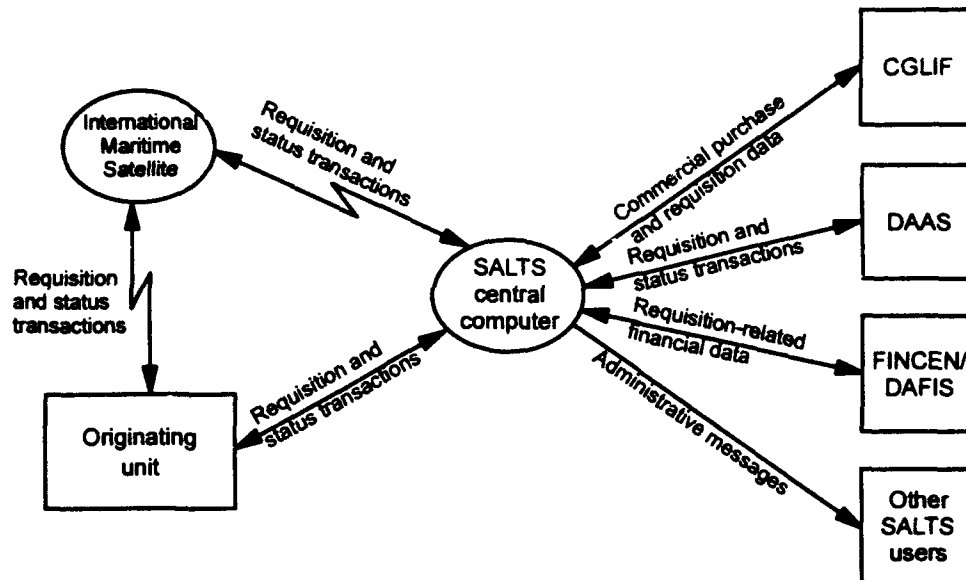
Figure 3-5.
Materiel Management System Transaction Flow Using SALTS

ADVANTAGES

The following are the advantages of SALTS or a system similar to SALTS:

◆ Satisfies MMS requirement for a gateway that all users can access

◆ Transmits a wide range of administrative data between units at sea and shore activities

◆ Enhances interoperability with the Navy and all of DoD

◆ Permits nontactical communication with other SALTS users

◆ Has the potential to provide interoperability with other nations' navies and coast guard forces for joint operations.

LIMITATIONS

As mentioned earlier in this subsection, SALTS requires an IBM-compatible MS-DOS operating environment. It is not compatible with the operating system used on the Coast Guard standard workstation. To run SALTS, the Coast Guard must either modify its standard workstations to run IBM-compatible MS-DOS or

acquire IBM-compatible PCs for the SALTS workstation or port SALTS (which is written in ANSI C) to the UNISYS environment.

Conclusions

Given the goal of MMS to be the sole Coast Guard requisitioning system, all units must be able to use MMS to send requisitions and commercial procurement information. This requires a communications system that accommodates all MMS users. The operational environment of a class oi users (afloat units) requires a communication system that does not depend solely on telephone land-line communications.

Both SALTS and a SALTS-like system can perform the function of a communications gateway for MMS. Such a gateway has the potential to be accessed by all Coast Guard units, ashore and at sea. It can route both requisitions and commercial purchase transactions through MMS.

Recommendations

We recommend that G-ELM establish a communications gateway that can accommodate both requisition and commercial purchase transactions. We further recommend that to meet such a requirement the Coast Guard establish SALTS or a system similar to SALTS so that all Coast Guard units can use MMS. The communications gateway must accept both requisitions and commercial purchase information from units, it must ensure that the requisitions are passed on to DAAS and the FINCEN, and it must capture both requisition and commercial purchase data.

Materiel Management System Central

The MMS Central is an organizational entity conceived by the Electronics Engineering Center (EECEN) business area analysis (BAA) described in Chapter 1. The EECEN BAA described an MMS Central through which all Coast Guard requisition-related transaction among and between the unit, DAAS, and FINCEN would pass. In addition to routing transactions, MMS Central is a central collection point for all Coast Guard requisition data.

Our analysis of the business practices for MMS leads us to conclude that the establishment of an MMS Central is not necessary. While we have concluded that MMS must perform the functions that EECEN assigns to MMS Central, we believe that it is unnecessary to perform them at one site. While the concept of an MMS Central is consistent with our descriptions of MMS business practices, it must be justified by a cost analysis.

INTERIM PROCESS IMPROVEMENTS

As we discussed earlier in this report, many units circumvent ARMS requisition processing by sending requisitions directly to DAAS and thus bypassing the financial data edit-check and obligation reporting procedures established in ARMS. Although units that send requisitions directly to DAAS are required to establish an obligation by sending DAAS a DIC Z0A transaction that mirrors the requisition to ARMS, many obligations are not established because either the DIC Z0A is not sent or its financial information is incorrect. For many of those requisitions, a financial obligation is not created until a bill is received from the source of supply.

The requirement that the requisitioning unit send a DIC Z0A transaction to ARMS can be eliminated by requiring DAAS to send ARMS a copy of all requisitions it receives from any non-ARMS Coast Guard requisitioner. ARMS would receive those transactions, check their financial data, and create a DAFIS transaction to establish an obligation.

Instead of sending requisitions directly to DAAS, those units with SALTS can send their transactions to ARMS. Those requisitions would be processed in the same way as any other ARMS requisition. The financial data edit check would validate the financial information and create and obligation. ARMS will send an error message to the requsitioner for those requisitions with invalid financial data.

Conclusion

We believe that requiring DAAS to send ARMS a copy of all non-ARMS requisitions received from Coast Guard requisitioners will improve the current requisitioning system. This improvement will do the following:

◆ Provide ARMS with a copy of all requisitions so that it can create an obligation before a bill is received from the source of supply

◆ Eliminate the need for the unit to send a DIC Z0A transaction for each message or DAMES requisition.

Although ARMS will receive a copy of all Coast Guard requisitions, we cannot be certain that the financial information on all requisitions is valid. The financial data on requisitions sent directly to DAAS will not be validated before the requisition is sent to the source of supply. However, availability of a copy of the requisition will give the financial system an earlier opportunity to correct any errors.

Recommendations

We recommend that G-ELM route all SALTS requisitions through ARMS and instruct DAAS to route a copy of all Coast Guard messages and Defense Automated Message Exchange System requisitions through ARMS until a communications gateway is established. The TCC Amdahl computer will process all SALTS requisitions through ARMS before forwarding them to the source of supply. A copy of all messages and DAMES requisitions will be sent to ARMS at the same time the requisition is sent to the source of supply.

IMPLEMENTATION OF THE DEFENSE LOGISTICS MANAGEMENT SYSTEM

The Coast Guard is committed to utilizing DoD procedures in order to operate as a part of the Department of the Navy in wartime and other national emergencies. However the decision the Coast Guard must make is if, when, and how to implement DLMS within MMS prior to a mandated DoD-wide implementation of the DLMS. This includes whether to incorporate it as a part of the initial MMS development or to develop MMS utilizing the DLSS and then to retrofit the DLMS into it when DoD implements DLMS. The following subsections identify the issues associated with this decision.

Benefits of Implementing the Defense Logistics Management System

Enhanced data capability is the key feature of the DLMS. The EDI, variable-length transactions permit creation of new data fields and increasing the size of existing fields. As noted earlier, more than 100 enhancements have already been incorporated into DLMS Version 2.0 and more will be included over time. Most of the enhancements are in MILSTRIP, which MMS will utilize. Among the more important enhancements are the following:

◆ Requisitions for different items contained in one DLMS transaction set

◆ Exception data, including both fielded and text data

◆ Serial, lot, or batch number identification

◆ Multiple advice codes

◆ Supply-assistance message

◆ Coast Guard-unique codes and data

◆ Requisition quantities by weapons systems and reason for requisitioning

- Specification of any combination of earliest acceptable, latest acceptable, and required delivery dates

- Multiple status addresses (requisitioner, bill-to, ship-to, and others as needed)

- In-the-clear addressing

- Marks and numbers

- Long-line accounting data.

The DLMS and EDI provide the opportunity to move the Coast Guard from proprietary electronic exchanges internally and paper in its exchanges with industry to an integrated ASC X12 EDI process. EDI can serve as the single format to support all of Coast Guard logistics transactions: within the Coast Guard, inter-Service, intra-agency, and between the Coast Guard and industry.

The primary reason for the Coast Guard to incorporate DLMS into MMS is the data-modeling effort that it is currently pursuing. If new Coast Guard systems will use only the data elements used by the DLSS, the Coast Guard has little reason to make the transition to DLMS. However, if functional process improvements require additional data exchanges, only the DLMS can meet those requirements. Because future logistics operations concepts will probably include far more data exchanges than currently occur, the Coast Guard should move towards DLMS implementation. For the near term, the Coast Guard should maintain the flexibility to continue to transmit in the DLSS with those recipients who are not DLMS capable.

Enhanced Data

One of the most valuable aspects of the DLMS is that its transaction sets are not limited to 80 characters. DLMS Version 2.0 contains many new data elements, and additional enhancements will be added over time. However, these enhanced data can be readily communicated only when both the sending and receiving activities are DLMS-capable. Enhanced data will be lost in any downward translation back to DLSS format so it must be communicated in another media.[14]

For example, if a depot ships firearms to a retail site using the DLMS 856[15] transaction set, the serial numbers of all the weapons being shipped would be included. However, if the receiving site were only DLSS capable, then DAAS would be unable to forward Transaction Set 856. DAAS would convert it into a DLSS DIC AS1 (shipment-status-to-requisitioner transaction) and the serial

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[14] Activities can work with other transaction senders and receivers to determine and develop means by which non-DLMS sites can obtain the enhanced data electronically; for example, through DLSS trailer cards.

[15] *Ship Notice/Manifest* transaction set used to transmit shipping information.

number data would be lost to the receiving site. The transmitting site would have to provide the enhanced data in paper or other format.

Conclusion

Assuming that the Coast Guard will include additional data elements in both MMS and modernization of the supply centers, the timing of the implementation of the two systems may affect how the DLMS are implemented. If the supply centers and units incorporate the new data elements and DLMS at approximately the same time, then exchanging enhanced data will be relatively easy through the DLMS. However, if MMS is implemented with enhanced data and DLMS capability significantly earlier than the supply centers, some means of dealing with the enhanced data must be provided. The following approaches are among those that may be used:

◆ Incorporate into the MMS switch (DLSS path) the capability to create trailer images for the enhanced data. (*Note*: The supply center software will have to be modified to receive and print the trailer images.)

◆ Transmit in the DLSS and handle enhanced data manually by message, telephone, letter, etc.

◆ Design MMS for enhanced data but do not implement it until the supply centers are capable of receiving it.

RECOMMENDATION

We recommend that G-ELM review DLMS enhancements and determine what enhanced data capabilities apply to Coast Guard logistics transactions. In reviewing this capability, G-ELM should consider the requisition- and shipping-related data that are currently exchanged between Coast Guard units and supply centers in manual formats. It then should identify the desired requisition- and shipping-related data that will be transmitted in MMS in light of the enhanced data capabilities of DLMS. The Coast Guard supply centers should be provided the capability to receive DLMS Version 2.0 transactions at the same time other Coast Guard units implement MMS, assuming MMS is designed to transmit enhanced data.

Risks and Uncertainties in Implementing the Defense Logistics Management System

TECHNICAL RISK

The DLMS is the DoD utilization of EDI for internal logistics communications. EDI has been widely used in private industry for years and its use within

the Federal Government is increasing. Hence, implementation of the DLMS represents little or no technical risk.

IMPLEMENTATION RISK

Considerable uncertainty exists about DoD's schedule for implementing the DLMS on a DoD-wide basis. A March 1992 memorandum of understanding among the Office of the Secretary of Defense, the Joint Logistics Systems Center, Defense Distribution Systems Center, and DLMSO states the DLMS ASC X12 EDI transaction sets will be the basis for communication among Corporate Information Management (CIM) systems. CIM system fielding will be the primary path to DLMS implementation. However, the timing for fielding CIM systems at ICPs and depots is currently unclear, and clarification is likely to take several years. Whether a CIM standard system for retail sites will be developed or whether the Services will continue to operate individual systems is also unclear as is the timing for incorporating DLMS within the CIM systems. Furthermore, no decision has yet been made as to whether DLMS will be a part of the initial fielding or will not be incorporated until after initial fielding is completed.

MIGRATION STRATEGY

One approach that would minimize the risks while developing an early DLMS capability would be to incorporate both DLMS and DLSS formats in the MMS transaction-generation/receiving modules. The format that is to be used can be controlled by a software switch that can be set up in one of two ways:

◆ *All or nothing.* This switch would be initially set for the DLSS formats and would remain that way until all DoD and Coast Guard sites move to DLMS; at that time, it would be switched to DLMS and would remain there.

◆ *Selective (or parallel).* This switch would select between DLSS/DLMS formats for each transaction generated.

The selective switch would be associated with a table of Department of Defense Activity Address Codes (DoDAACs) containing an indicator as to whether the recipient is DLSS- or DLMS-capable. MMS programs would format the transaction based on the table entry (see Figure 3-6). MMS would also have to be able to receive transaction data in either format. That can readily be accommodated based on the telecommunications source. In-bound DLSS traffic will continue to come through the AUTODIN, which has supported DLSS traffic since 1965. Inbound DLMS traffic will come through the Defense Integrated Systems Network (DISN) (see Figure 3-6).
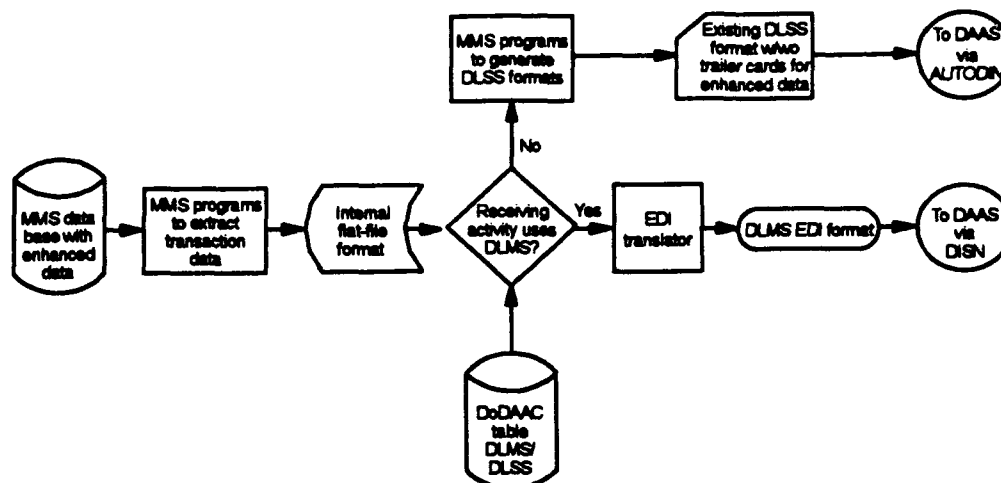
Figure 3-6.
Flow of MMS Data to DLSS/DLMS Formats

CONCLUSION

The selective approach would permit Coast Guard sites to gain DLMS capability without losing the ability to exchange data with activities that continue to use DLSS formats. Coast Guard sites can implement DLMS selectively with a willing trading partner(s) either within the Coast Guard or with another agency. DAASC is also planning to be able to convert transactions between DLMS and DLSS as needed.

RECOMMENDATION

We recommend that the Coast Guard design for MMS provide the capability for automatically selecting either DLSS or DLMS transaction formats. The selective switch (described in Figure 3-6) will be able to produce transactions in either DLSS or DLMS formats depending on the capabilities of the recipient.

Recommended Materiel Management System

INTERIM REQUISITIONING PROCESS IMPROVEMENTS

In Chapter 3, we recommend that G-ELM route all SALTS requisitions through ARMS and instruct DAAS to route a copy of all Coast Guard requisitions it receives directly from Coast Guard units to ARMS. That will enable the Coast Guard to process all SALTS requisitions through the ARMS edit checks, and create a financial obligation before it is passed to the source of supply. It will enable ARMS to create an obligation for all message and DAMES requisitions with valid financial information at the time the requisition is passed to the source of supply. Requisitions with invalid financial information must be manually researched to establish an obligation. Figure 4-1 shows the interim Coast Guard requisitioning process using ARMS after this recommendation is implemented.
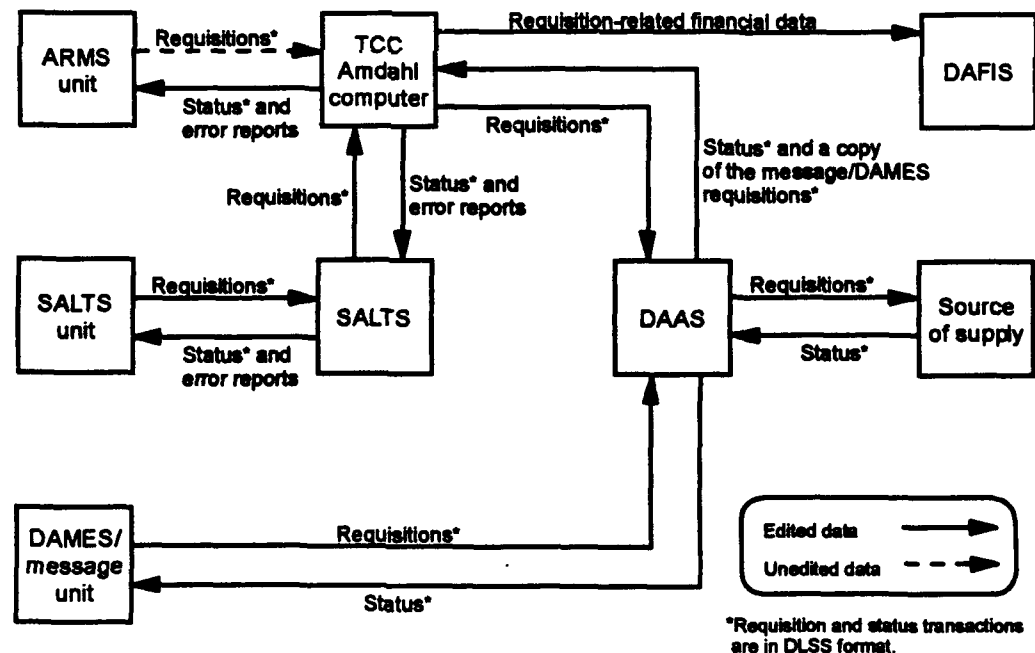

Figure 4-1.
Interim Flow of Coast Guard Requisition Information

The interim requisitioning system will allow the Coast Guard to process all requisitions through ARMS. Requisitioners will continue to send requisitions

using current methods. ARMS requisitioning units will send requisitions to the TCC Amdahl computer, SALTS users will send requisitions to ARMS via SALTS, and DAMES and message requisitioners will continue to send their requisitions directly to DAAS. When DAAS receives unedited requisitions from any Coast Guard source other than ARMS, it will forward a copy of the requisition to the TCC Amdahl computer for processing through ARMS. ARMS will process those requisitions through its edit checks and send a DAFIS transaction to the DAFIS computer center to create an obligation. DAAS will forward all requisitions received from ARMS to the source of supply. It will route a copy of all status to ARMS and to the requisitioner in the manner (message, DAMES, SALTS, or ARMS) indicated in the media and status on the original requisition.

MATERIEL MANAGEMENT SYSTEM PROCESSES

Our description of how we believe the MMS should function is divided into the requisitioning process, commercial procurement process, and data-collection process.

Requisitioning Process

The requisitioning process starts after a materiel need is identified and Government (Coast Guard or other Government agency) source of supply has been identified. Figure 4-2 shows the path of the requisition and requisition-related information.
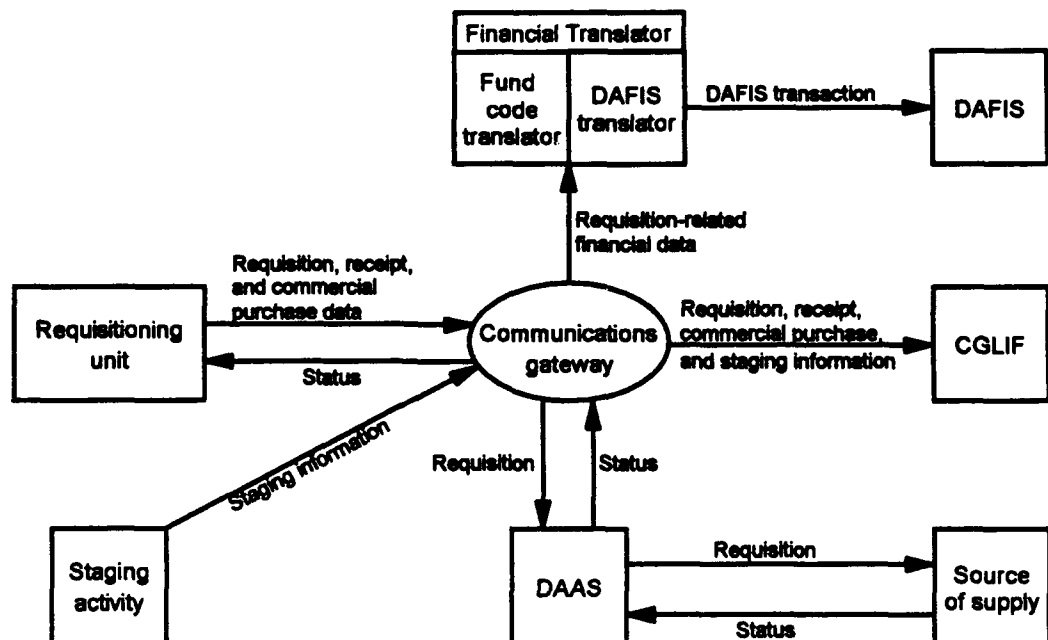

Figure 4-2.
Recommended MMS Transactions – Data Flow

Defense Logistics Standard System Environment

The MMS creates the requisition at the unit level on the Coast Guard standard workstation. The application software can create a complete and correct DLSS requisition. The software ensures that all required data fields are completed and that Coast Guard-specific data such as financial obligation information are valid. MMS creates a second 80-character image that contains the additional data[1] necessary to create a financial obligation. MMS sends the edited DLSS requisition and second 80-character image to the communications gateway in DLSS format.

The communications gateway receives the DLSS requisition and automatically routes a copy of the first 80-character requisition image to DAAS, and the CGLIF. The communications gateway sends both the original requisition and the second 80-character image to the DAFIS translator.

The DAFIS translator creates a DAFIS-formatted obligation transaction from the DLSS requisition and second 80-character image and maintains a record linking the requisition number to a line of accounting data. The translator passes a DAFIS-formatted transaction to the DAFIS computer center to create an obligation.

DAAS receives the requisition and passes it to the source of supply.

The CGLIF receives the requisition and creates a tracking record.

Defense Logistics Management Systems Environment

All MMS sites will use the general approach shown in Figure 4-3 to process DLMS transactions. MMS programs would extract requisition data from MMS files, and the extraction program will edit the data to ensure that it meets all Coast Guard and DLMS edit criteria, including the following ones:

♦ All DLMS and Coast Guard-required fields are present.

♦ A "TO" address with a valid DoDAAC (OPFAC) is present.

♦ All codes used are valid.

♦ Valid financial information is provided, including fund code, program element, cost center, appropriation limitation code, region code, and system data.

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[1] The 80-character image contains the program element, cost center, appropriation limitation code, region code, and system data.
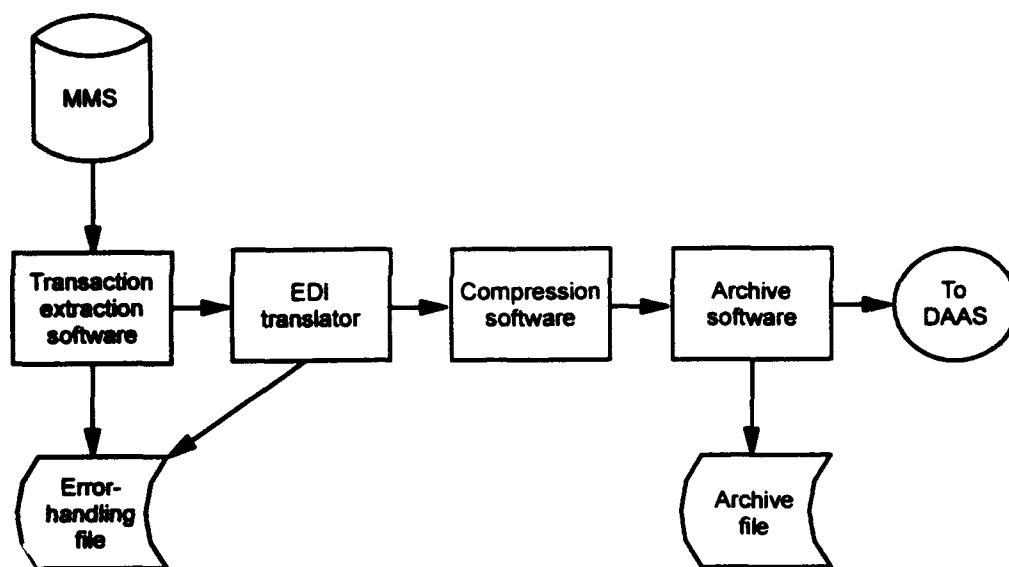
Figure 4-3.
General Flow of DLMS Transactions

The output of the extraction program, typically called a flat file,[2] is given to the EDI translator for conversion to DLMS format. The translator, after creating the EDI format, packages the transactions into functional groups and creates an interchange envelope.[3] The data are compressed, archived,[4] and transmitted to a communications gateway. The communications gateway sends the requisition to DAAS, the DAFIS translator, and the CGLIF.

The MMS sites will have procedures for collecting and resolving errors detected by local software or by other trading partners. Errors detected by trading partners will be identified to the initiating MMS sites through EDI transactions. Three different transactions will be used:

◆   Transaction Set TA1 — *Interchange Acknowledgment*

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[2] Flat file in EDI terminology is a stream of transaction data flowing between the application data base (MMS) and the EDI translator. The data stream is usually a simple sequential file where precise format depends on the specific EDI translator and application data base being used.

[3] Multiple requisitions can be incorporated into a DLMS 511 transaction set. In turn, multiple 511 transaction sets can be bundled together into a functional group. Multiple functional groups can be bundled into an *interchange set* (envelope) for transmission.

[4] Archiving consists of retaining a copy of a transmission to guard against its being lost or inadvertently destroyed during telecommunication or by the receiving party. If the original is lost or destroyed, the archived copy should be readily retrievable and can be transmitted. For these purposes, archived materiel needs to be kept for only a relatively short time (DAASC will maintain archives for an extended period of time). For commercial procurements and other sensitive data transmissions, archives may need to be maintained for auditing.

◆ Transaction Set 997 — *Functional Acknowledgment*

◆ Transaction Set 824 — *Application Advice.*

The DAAS acts as the hub for all DLMS transactions. It archives, edits, routes, and distributes transactions. It also acts as a gateway for connecting DoD activities to commercial trading partners for DLMS and other EDI transactions.

The DAAS receives the envelopes (see Figure 4-4), evaluates the interchange content to determine those transaction sets that require further editing, passes those transactions through their translator, and processes the transactions.

◆ The DAAS archives all incoming envelopes for a period of at least 30 days.

◆ The data are decompressed.

◆ The DAAS translator initiates a Transaction Set TA1 back to the sending translator acknowledging receipt of, or inability to, open the interchange envelope.

◆ If the DAAS translator is unable to process any transaction set(s) within the envelope because of EDI syntax errors, a Transaction Set 997 will be sent to the originator identifying the specific transaction sets that cannot be processed.
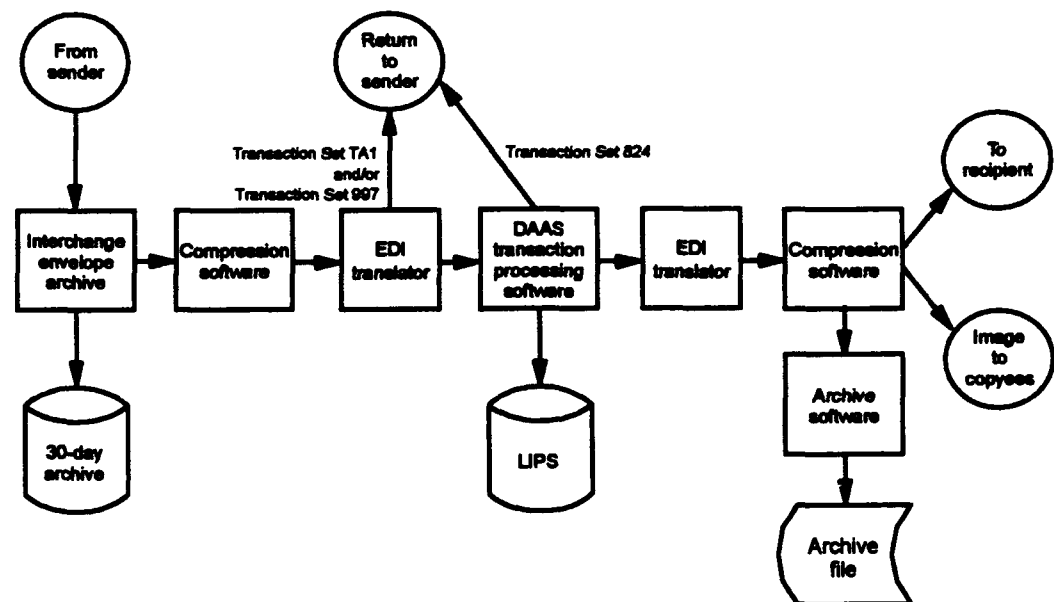

Figure 4-4.
DLMS Transaction Flow – DAAS Processing

The translator then passes to DAAS application programs a flat file of the transaction set that were enclosed in the envelope.

The DAAS will use application software to open transaction sets down to the transaction (individual requisition level) and will perform the following functions on transactions:

◆ Basic edits. Transaction Set 824 provides functional advice, including transaction rejects. For the following reasons, a Transaction Set 824 may be sent back to the originator:

► Requisition quantity is zero

► No valid fund code

► No stock or part number.

◆ Validation of the national stock number against the managing activity and rerouting if needed.

◆ Generation of images, as needed.

◆ Holding, forwarding, or modifying returning status per Coast Guard profile for the MMS site.

◆ Executing "suppress" or other national command directives.

◆ Loading transaction data into LIPS.

The DAAS sorts all requisition-related transactions in a given processing window or queue by type and "TO" address. It then generates new transaction sets and functional groups, and the outbound translator converts them as required into EDI format, compresses the data, archives the outbound messages, and transmits them to recipients.

The DAFIS translator creates a DAFIS-formatted obligation transaction from the requisition. It passes the DAFIS obligation transaction to the DAFIS computer center.

The CGLIF receives the requisition and creates a tracking record.

The receiving activity's translator receives and performs EDI syntactical analysis on incoming envelopes and enclosed transaction sets (see Figure 4-5).

◆ It issues a Transaction Set TA1 either accepting or rejecting each envelope received.

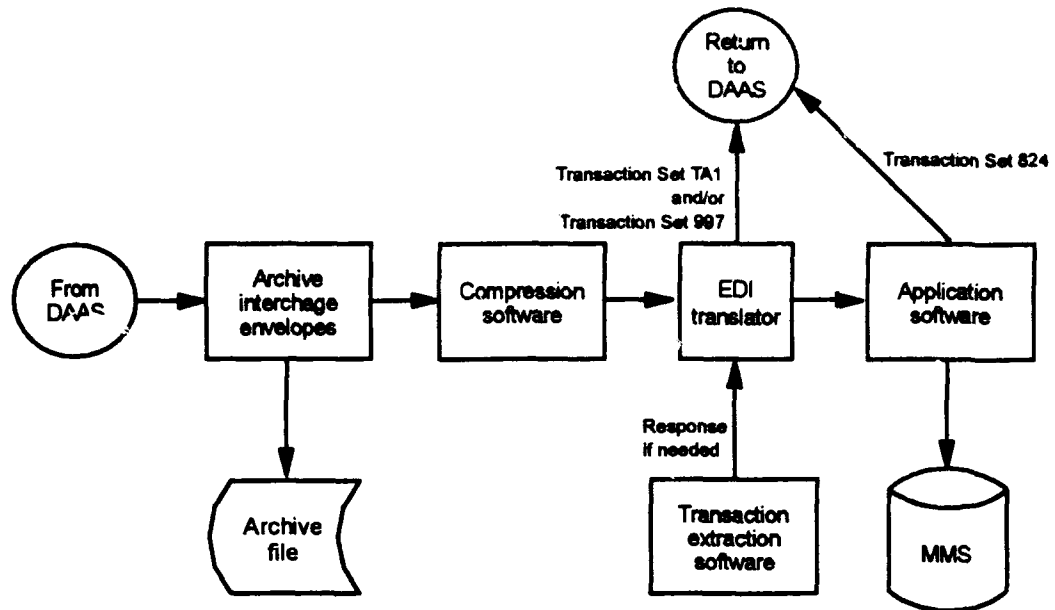◆ It issues a Transaction Set 997 for each transaction set that fails syntactical edits.

Figure 4-5.
DLMS Transaction Flow – Recipient Processing

The translator converts the data from EDI format to a flat-file format. That process entails breaking envelopes/functional groups to the transaction set level and routing transactions sets to the requisition-processing software.

The receiving application software applies the required edits and should make every effort to process the requisition. When it cannot do so, it rejects the transaction and submits a Transaction Set 824. When a transaction contains errors, but is still processable, advisory errors can be sent to the originator through the DAAS on a Transaction Set 824.

In the rare case that DAAS incorrectly routes a requisition, the receiving activity re-routes it to the correct recipient when that recipient is known (e.g., for items assigned to a new activity). DAAS and the originator is notified by a Transaction Set 824.

For a requisition, none of the TA1, 997, or 824 transaction sets convey supply status. Transaction Sets 997 and 824 are used only to report error conditions.

PROCESSING REQUISITIONING STATUS

Defense Logistics Standard System Environment

Requisition status transactions are created and transmitted by the source of supply to communicate changes in the status of a requisition or are submitted in response to an inquiry from the requisitioning unit. Status transactions start when the source of the supply sends a standard DLSS status transaction to DAAS. The DAAS routes all status transactions to the communications gateway for distribution to the requisitioning unit and the CGLIF. Additionally, those status transactions (identified by their document identifier code) that affect the financial obligation are addressed to the DAFIS translator at the FINCEN.

The CGLIF receives the status transaction and adds it to the tracking record established when the requisition was created. The DAFIS translator matches the requisition number on the status transaction to a line of accounting data, and creates a DAFIS-formatted transaction and transmits it to the DAFIS computer center to modify the obligation.

Defense Logistics Management Systems Environment

The DLMS processing rules are the same for supply status as for requisition processing. All supply and shipment status is returned to the originator through DAAS. Where the original requisition requests multiple status addressees, the receiving activity will supply one status transaction to DAAS, and it will perform the distribution. Supply status is generated by the application system and reported on Transaction Set 870, *Order Status Report*. Since Transaction Set 870 contains the same financial data as the requisition, the DAFIS translator does not maintain a record linking the line of accounting data to the original transaction.

STAGING INFORMATION

When a requisitioned item is received by an intermediate Coast Guard storage activity or any activity that is temporarily holding materiel for the end user, the activity enters staging information in the CGLIF. The staging activity transmits a transaction to the communications gateway, addressed to the CGLIF, to update the requisition's tracking record.

Commercial Procurement Process

The MMS will not transmit commercial procurement orders. Unlike the Federal Supply System's requisitioning process, the unit-level commercial procurement process is not governed by a standard set of rules for all commercial vendors. Each vendor has a unique set of rules and requirements when an order is placed. MMS captures data from the commercial procurement process.

The commercial procurement process starts after a purchase order is approved, and the order is placed with a commercial vendor. In a transaction separate from the one placing the commercial purchase, MMS transmits (Figure 4-2) information relating to that procurement to the CGLIF for tracking and data collection. MMS is linked to the application that creates the commercial purchase order, facilitating a capability to automatically receive purchase order information and create a standard transaction to input purchase order information to the CGLIF at the time of purchase order placement. The document number, short description of the item, quantity, price, commercial source of supply, and estimated delivery date are examples of information required on the input transaction. The input transaction is sent to the communications gateway addressed to the CGLIF.

RECEIVING COMMERCIAL PURCHASE STATUS INFORMATION

Vendor transactions provide status of commercial purchases. As the status is received, transactions are created to update the tracking record. The status transaction is transmitted to the CGLIF via the communications gateway. The CGLIF receives the status and adds it to the tracking record.

Staging information is input to the CGLIF when a commercially purchased item is received by an intermediate Coast Guard storage activity. The staging activity transmits a transaction to the communications gateway, addressed to the CGLIF, to update the commercial purchase's tracking record.

Data-Collection Process

The CGLIF performs the data-collection (described in Chapter 3) function for MMS. All requisition and commercial procurement transactions passing through the communications gateway are passed to the CGLIF. Figure 4-2 shows data flows to the CGLIF.

The communications gateway sends the following data to the CGLIF:

◆ Requisitions and commercial procurement transactions from the units initiating the transactions

◆ All DLSS status transactions from DAAS

◆ Commercial status transactions from the unit initiating the commercial purchase

◆ Staging information from intermediate storage activities.

The communications gateway provides Coast Guard units access to the CGLIF. Standard transactions or interactive data screens allow users to retrieve

necessary data. Additionally, the CGLIF provides requisitioning and commercial purchase data to the Parts Tracking System.

MATERIEL MANAGEMENT SYSTEM ORGANIZATIONAL ENTITIES

This section describes the organizational entities that make up our recommended MMS.

Unit-Level Materiel Management System

At the unit level, MMS creates, edits, and transmits requisitions into the Federal Supply System. The MMS unit-level application creates a complete DLSS requisition in either DLSS or DLMS format. Edit tables exist to ensure the validity of all Coast Guard-specific data on the requisition. The unit-level MMS hardware sends the requisition into the supply system through the communications gateway.

The unit-level MMS application extracts information from a commercial purchase order and transmits it to the CGLIF (data-collection system).

Communications Gateway

The MMS communications gateway functions similarly to the Navy's SALTS as a routing hub to forward transactions to their ultimate destination. The communications gateway is accessible by either telephone landline or cellular and satellite transmissions.

Coast Guard Finance Center

The FINCEN's MMS software converts the standard requisitioning data plus the program element, cost center, appropriation limitation code, region code, and system data into a line of accounting data. The FINCEN maintains a file, by requisition number, of all financial obligation accounting data sent to DAFIS.

Departmental Accounting and Financial Information System Translator

The DAFIS translator converts the financial accounting data and DLSS requisition into a 320-character DAFIS-formatted transaction. The DAFIS transaction is sent to the DAFIS computer center to either generate, modify, or expend an obligation.

Coast Guard Logistics Intelligence File

The CGLIF receives requisitioning and commercial-purchasing data from the communications gateway. It maintains and provides access to current transaction information. The CGLIF archives historical data from completed transactions for data query and analysis.

Staging Activities

The staging activities are typically the shore support or maintenance activities that temporarily stores materiel between the source of supply and its ultimate destination. Staging activities input transactions for the receipt and disposition of in-transit materiel to the CGLIF.

Defense Automatic Addressing System

The DAAS receives requisitions in either DLSS/DLMS format from the communications gateway and routes them to the source of supply. It receives status transactions from the source of supply and routes them to the communications gateway.

Glossary

ADP	=	automated data processing
AFC	=	allotment fund code
ANSI	=	American National Standards Institute
ARMS	=	Automated Requisition Management System
ASC	=	Accredited Standards Committee
ASCII	=	American Standard Code for Information Interchange
AUTODIN	=	Automated Digital Network
BAA	=	business area analysis
CALS	=	Computer-aided Acquisition and Logistics System
CAR	=	Conceptual Architecture Report
CASREP	=	casualty report
CGLIF	=	Coast Guard logistics intelligence file
CIM	=	Corporate Information Management
DAAS	=	Defense Automatic Addressing System
DAASC	=	Defense Automatic Addressing System Center
DAFIS	=	Departmental Accounting and Financial Information System
DAMES	=	Defense Automated Message Exchange System
DIC	=	document identifier code
DISA	=	Defense Information Systems Agency
DLA	=	Defense Logistics Agency
DLMS	=	Defense Logistics Management Systems
DLMSO	=	Defense Logistics Management Standards Office

MILSCAP	=	Military Standard Contract Administration Procedures
MILSTAMP	=	Military Standard Transportation and Movement Procedures
MILSTEP	=	Military Supply and Transportation Evaluation Procedures
MILSTRAP	=	Military Standard Transaction Reporting and Accounting Procedures
MILSTRIP	=	Military Standard Requisitioning and Issue Procedures
MLCA(v)	=	Vessel Division of Maintenance and Logistics Command Atlantic
MMS	=	Materiel Management System
MODELS	=	Modernization of the Defense Logistics Standard Systems
OPFAC	=	operating facility
OSC	=	Operations Systems Center
PC	=	personal computer
RJE	=	remote job entry
ROD	=	Report of Discrepancy
SAIL	=	Systems to Automate and Integrate Logistics
SALTS	=	Streamlined Automated Logistics Transmission System
SDR	=	Supply Discrepancy Report
TCC	=	Transportation Computer Center
USCG	=	U.S. Coast Guard
USCGC	=	U.S. Coast Guard Cutter
VAN	=	value-added network
VNTSC	=	Volpe National Transportation System Center

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13. ABSTRACT (Maximum 200 words)

The Materiel Management System (MMS) is designated as the future unit-level U.S. Coast Guard requisitioning system, replacing the Automated Requisition Management System. MMS is envisioned as the unit-level means for creating requisitions from requirements submitted by other unit-level applications. It will transmit requisitions to the source of supply and the financial system and information on requisition and commercial procurement to the data-collection system. It will receive supply status transactions from the source of supply and distribute them to the unit, financial system, and data-collection system.

Our analysis of the requirements for the MMS focused on the following four major issues: (1) the method of transmitting and validating requisition-related financial information; (2) the process for collecting and providing access to requisition and commercial purchasing data; (3) the communications methods used to transmit requisitions from all Coast Guard units; and (4) the effect of Defense Logistics Management Systems (DLMS) Version 2.0 on the implementation of MMS.

From our analysis of the issues and requirements of MMS, we recommend that the Coast Guard take the following action: perform requisition-related financial data edit checking at the unit level; eliminate the operating facility/fund code table; develop and maintain a translator to convert Defense Logistics Standard System (DLSS) transactions into Departmental Accounting and Financial Information System-formatted transactions; establish a Coast Guard logistics intelligence file; design the data-collection system to support the Parts Tracking System; ensure MMS and the Parts Tracking System do not duplicate processes; establish a communications gateway that can accommodate both requisition and commercial purchase transactions; instruct Defense Automatic Addressing System to route a copy of all Coast Guard message and Defense Automated Message Exchange System requisitions through the Transportation Computer Center Amdahl computer until a communications gateway is established; provide the capability for MMS to automatically select either DLSS or DLMS formats; and review DLMS enhancements and determine what enhanced data capabilities apply to Coast Guard logistics transactions.

14. SUBJECT TERMS		15. NUMBER OF PAGES
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